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Media advocacy for farm safety and health: current landscape and future directions

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Abstract

Background Within public health, media advocacy embraces the influence of new media and journalists in setting public agendas and promoting important public health programming and policies. Though occupational health and safety (OSH) is an important component of public health, few studies have examined the use of media advocacy within this specific field. This study aims to examine how media is currently used to support OSH efforts as well as opportunities for engaging with this strategy.

Methods LexisNexis and AgInjuryNews were used to collect news media pertaining to farm safety, and specifically tractor safety, published between 2018 and 2021 in Iowa, Kansas, Missouri, and Nebraska. A total of 372 news articles were identified. Content analysis was used to assess a random sample of these articles ($n = 122$) to answer the questions: (1) why are stories about farm and tractor safety in the news; (2) who speaks in the news about farm and tractor safety; (3) how are farming, farmers, and farm safety depicted in the news; (4) who is named as responsible for and called upon to take action to address farm and tractor safety issues; and (5) what solutions to address farm and tractor safety are mentioned?

Results In general, relevant news stories ($n = 89$) were published as a result of event (such as tractor overturns or safety days). Many stories placed responsibility for both farm injury events and the need to increase safety measures solely on farmers, demonstrating a missed opportunity for understanding how farm safety is impacted by the larger societal context, like legislation and government programs.

Conclusions Using these findings, the authors provide several suggestions for OSH practitioners who hope to improve their use of media to advance farm safety agendas.

Keywords Media advocacy, Ethnographic content analysis, ROPS, Agricultural safety

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Introduction

News media scholarship has established that journalists and editors set the agenda for the public debate about any issue by deciding which incidents they report (or don't report) and *how* they choose to frame these stories [1]. As a result, news coverage influences *whether* people think about an issue, and the frames journalists use affect *how* audiences think about it and what they think should be done. Many factors influence what frames get evoked in news stories: the language that's used, what types of information are highlighted or left out, the potential solutions that are discussed, and whose perspectives are included or missing. Frames that are most often repeated and deeply ingrained become the narratives that either confine our policy choices or make a particular vision possible.

Within the media, there are two primary types of frames: portrait and landscape. Stories that use portrait frames tend to be narrow in focus and are aimed at describing an individual or event rather than the context within which they exist (for example, see Meitrodt, 2015 [2]). Stories that expand the frame to show the landscape tend to reveal the policies and institutions that shape the conditions around people (for example, see Moran, 2021 [3]). The framing of issues within the media can also lead to differences in calls to action and solutions to problems, with portrait frames lending themselves to individual calls to action and landscape frames more frequently embracing societal and policy changes as solutions. As such, an important part of landscape frames are government actors who have a responsibility and moral imperative to take action.

A previous content analysis of farm safety coverage in the US demonstrates that reports of isolated incidents dominate coverage, and that these types of stories skim over long-term social consequences, leave out the voices of people with personal experience, and neglect to provide information about prevention efforts [4]. Given the high risks of farming (the National Institute for Occupational Safety and Health, or NIOSH, reported a fatality rate of 19.4 deaths per 100,000 workers in 2019), it is vital to understand the media landscape related to farms and farm safety and how media advocacy could advance initiatives that improve the safety and health of farmworker communities.

Though there have been a handful of studies published pertaining to news coverage of agricultural injuries, and some have even alluded to using media as a tool to help promote prevention efforts [4–6], none of these studies were specific to the media advocacy framework [1]. Unlike traditional media and public relations, “media advocacy is less about delivering a message and more about raising voices in a democratic process using policy to change systems and conditions [1].”

In particular, current efforts aim to explore the utility of media advocacy as a strategy to implement the National Rollover Protective Structure (ROPS) Rebate Program (NRRP) in four states [7, 8]. The NRRP targets the leading cause of death on farms, tractor overturns, by providing logistical and financial support to farmers who install ROPS on their tractors. Though logistical support is available to any farmer, financial support is only available in states with dedicated rebate funding. Thus, current media advocacy efforts aim to help secure adequate funding in states where tractor overturn fatalities are more common.

As a first step, this study aims to: [1] understand how news coverage portrays tractor safety, and more generally, farm safety; [2] highlight existing gaps in the use of media to promote viable safety solutions; and [3] identify opportunities for and potential barriers to shifting discussions in the media to benefit farm safety efforts. By assessing news in this way, the authors are able to make recommendations for utilizing media advocacy principles to increase support for the implementation of evidence-based solutions in future farm safety and health news. As this manuscript will show, results specifically related to ROPS and the NRRP were somewhat limited; thus, the findings presented here focus primarily on the news coverage of farm safety in general. Additional findings specific to news about ROPS and the NRRP have been published by the authors as a brief report [9].

Methods

To understand how news coverage frames farm and tractor safety, an ethnographic content analysis was conducted focusing on news about farm and tractor safety from four agricultural states: Missouri, Kansas, Iowa, and Nebraska. These states are part of the larger NRRP implementation effort and were selected due to their high numbers of tractor overturns [10] and/or local stakeholders' interest in bringing the Program to their state. The content analysis was informed by occupational health and safety professionals working in those communities.

Data collection

To identify which stories to analyze, the study team first developed a search string, or a list of targeted words related to farm safety issues, to collect articles from LexisNexis [11], a database of print and online news. The search string was informed by conversations with stakeholders, such as individuals working on agricultural health and safety issues in the four states previously mentioned or in other regions.

The study team refined and modified the search string to obtain the most appropriate search results. For example, search terms were expanded from formal terminology (e.g. “ROPS”) to lay terms used by reporters (e.g. “roll

bar”). Other terms were excluded (e.g. “farmers market”) to decrease the volume of irrelevant results.

To capture news about farm and tractor safety, the final search string included a combination of 19 terms related to farm equipment safety protocols, farm safety incidents, and tractor overturns. It excluded an additional 17 terms (Table 1). Truncated terms that could have multiple endings (e.g. “injur*” includes “injured” or “injury”) and spelling variations (e.g. “farmwork” vs. “farm work”) were also included. To collect articles that substantively discussed farm safety, articles included in the final sample had to include a combination of Category 1 and 2 search terms, repeated at least three times in the article.

In addition, AgInjuryNews [12], a collection of news specific to agriculture that is not included in the LexisNexis database, was searched for additional stories. Because AgInjuryNews focuses solely on agricultural injury events and utilizes a different search method, the search criteria noted above was modified to fit this database. Specifically, farm and injury search terms and terms to be excluded were *not* used, as the database only reports on occupational injury events.

Only relevant articles published between January 1, 2018 and May 31, 2021 in outlets from Iowa, Kansas, Missouri, and Nebraska were included in the final sample. The start date was selected based on the last data included in a prior media analysis on the same topic [4].

Data analysis

Based on the volume of coverage by state, a proportional random sample (one-third of articles from each state) was used to build a representative sample for the content analysis. Articles that met search criteria but did not

substantively discuss farm or tractor safety issues in the United States were excluded. For example, we excluded stories about off-farm collisions involving tractors, and brief listings of community events related to farm safety with no other information were excluded from the final analysis.

To evaluate the sampled articles, a robust codebook was developed. This codebook served as a guide for all study team members to come to agreement, apply a similar lens to the articles, and capture persistent themes in the coverage. Over the course of building the questions and criteria for the codebook, three coders (including authors KG and SPS) consulted the full study team, reviewed literature and test-coded a small test sample of articles to ensure the codebook was capable of addressing study aims. This was followed by multiple rounds of inter-coder reliability testing and a statistical test to ensure that agreement between coders was not by chance. Coders achieved satisfactory reliability measures for each coding variable (Krippendorff’s $\alpha > 0.8$). The final codebook addressed questions including:

- Why are stories about farm and tractor safety in the news?
- Who speaks in the news about farm and tractor safety?
- How are farming, farmers, and farm safety depicted in the news?
- Who is named as responsible for and called upon to take action to address farm and tractor safety issues?
- What solutions to address farm and tractor safety are mentioned?

These specific questions are based on the media advocacy framework, and take into consideration concepts such as message framing, values statements, and perspectives (speakers quoted in stories), all of which are part of a comprehensive media advocacy strategy.

Sampled news stories were divided and coded independently by each of the three coders and results were combined for analysis. All authors regularly discussed key findings and themes to complete the analysis.

Results

In total, 372 print and online news articles meeting the search criteria were collected. These articles were from a total of 142 news outlets in Iowa (40%), Kansas (14%), Missouri (15%), and Nebraska (31%). Most stories about farm safety also took place in the four states included in the study, though stories from Texas, Pennsylvania, New York, and Illinois did appear in the results.

For the purpose of the content analysis, the proportional random sample included 122 articles from 65 news outlets. 33 articles were removed because they did not

Table 1 Final list of search terms. Asterisks (*) indicate truncated terms

Category 1 Search Terms	Exclusion Terms
• farm	• obituar*
• farm equipment	• public safety
• farmwork (multiple variations)	• safety net
• tractor	• recognized obligations
	payment schedule
Category 2 Search Terms	• tractor trailer (multiple variations)
• safety	• semi-tractor
• accident	• freightliner
• injur*	• semi driver
• pinned	• semi rollover
• fatal*	• land investment
• dead	• crop insurance
• rollover (multiple variations)	• wind farm
• overturn	• farmers market
• turnover	• dead animals
• tipped over	• animals found dead
• tip over	• dead cattle
• rollover protective structure	• homicide
• rollover bar	
• roll bar	
• safety equipment	

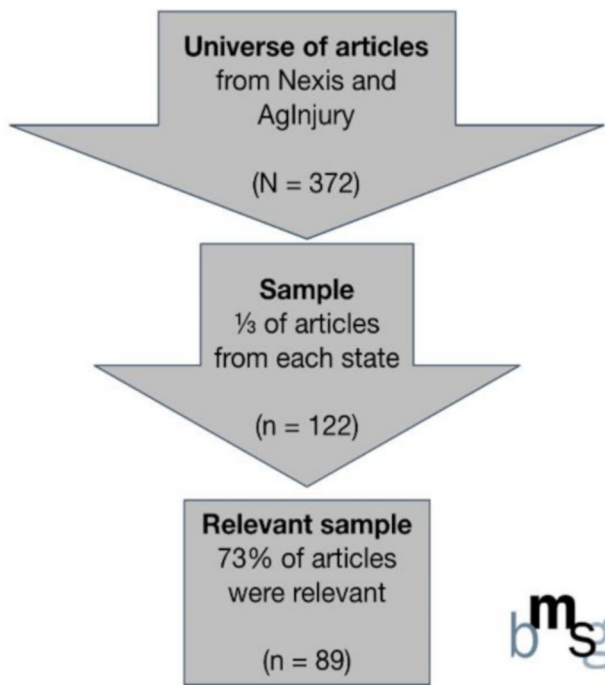


Fig. 1 Sampling flow chart

substantively discuss farm or tractor safety issues in the United States. The final generalizable sample included 89 relevant articles (Fig. 1).

The vast majority of articles (88%) about farm safety constituted traditional news coverage. Opinion pieces (articles written with a clear stance, such as letters to the editor or editorials) and guest contributions (neutral pieces from experts in farm safety whose academic affiliations limited them from publicly advocating for any policy) were rare, representing only 12% of coverage. In general, these pieces provided safety tips for farmers.

Why are stories about farm and tractor safety in the news (Fig. 2)?

Each article was examined to answer the question, Why was this story published today? Reporters commonly refer to the catalyst for a story as a “news hook,” and many factors can influence why reporters and editors select some stories and not others. The majority (62%) of articles were in the news because of a milestone such as an incident, policy change, or launch of a campaign. Of stories with a milestone hook, 95% involved incident reports. A rare example of a non-incident milestone was a story announcing workshops for farmers about

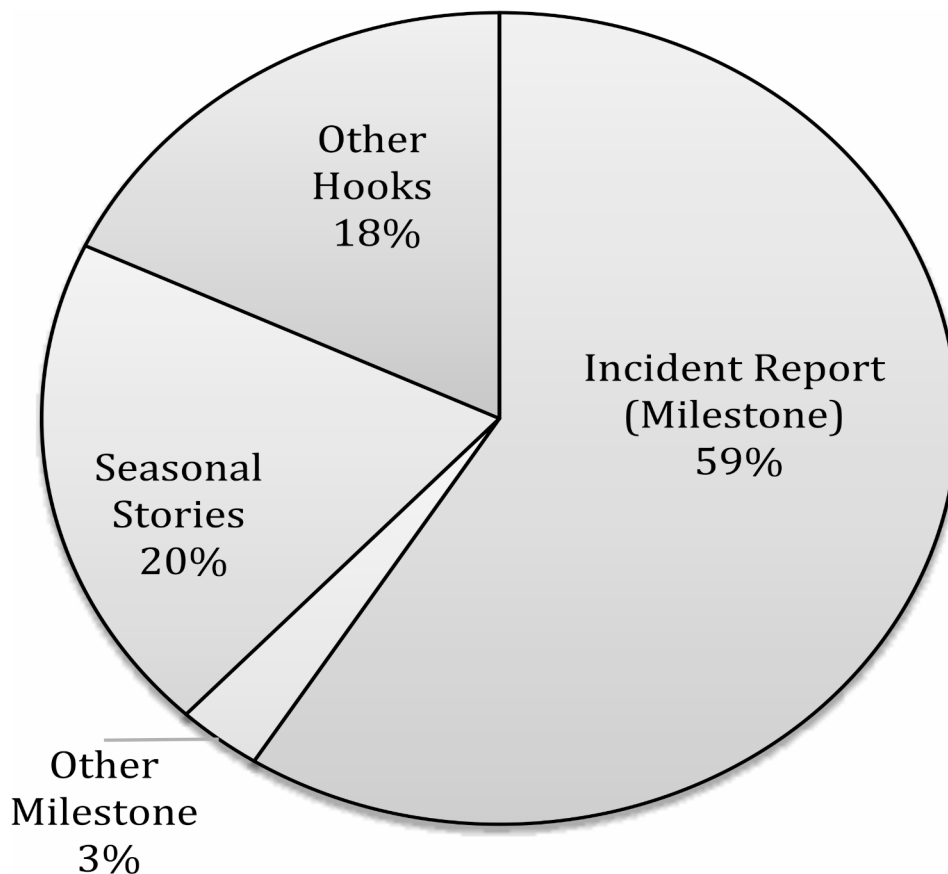


Fig. 2 News hooks used in reviewed media

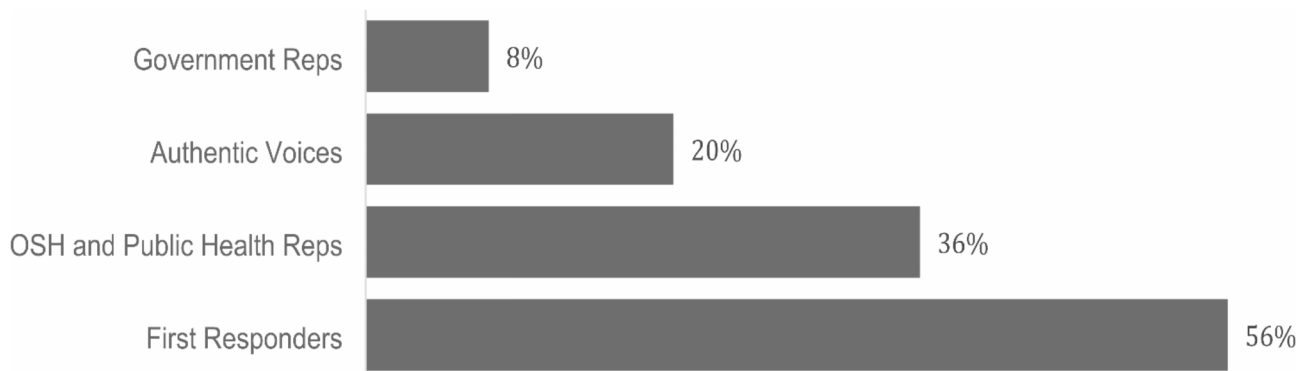


Fig. 3 Representation of various speakers in the news about tractor and farm safety

regulations included in the Food Safety Modernization Act.

Besides milestones, seasonal stories that were in the news because of the time of year accounted for nearly 20% of hooks in the coverage. Planting and harvesting seasons saw the highest volume of coverage.

Who speaks in the news about farm and tractor safety (Fig. 3)?

Quotes and attributions play an important role in shaping how an issue is framed and whose perspectives are deemed worthy of sharing. To understand whose perspectives and stances are elevated in the news, the research team determined which speakers were quoted or discussed in the news about farm and tractor safety, as well what they said.

First responders, including law enforcement officers and emergency medical responders, were quoted most often in the news about farm safety— they appeared in over half (56%) of articles. They were frequently quoted in incident reports to describe events.

Representatives from occupational safety and public health organizations, including state Extension services, were quoted in over one-third (36%) of stories. These professionals tended to issue warnings and prevention tips as when an outreach specialist for an agricultural and health safety center cautioned, *“Farming is the most hazardous industry in the U.S.... A lot of the equipment is inherently dangerous [13].”*

Authentic voices, or people who can speak about an issue from the unique vantage point of their own lived experience, appeared in 20% of articles. These speakers may have survived a farm injury or have a family member who did not. For example, after having to amputate his own leg, a farmer lamented *“I paid the price of being in a hurry and not paying attention, basically [14].”*

Government officials appeared in just 8% of articles. A rare example appeared from a state governor, who was briefly quoted in an article about the state’s Farm Safety Week [15].

How are farming, farmers, and farm safety depicted in the news?

Over half (66%) of stories about farm and tractor safety used portrait framing, meaning that audiences may learn a great deal about the individual or event, but less about the environment surrounding individuals or what factors brought them to that moment.

Alternately, 14% of stories expanded the frame to show the landscape of farm and tractor safety, meaning that the stories were connected to larger social and economic systems. These articles were not specific to incidents and addressed broader issues, including the roles women and youth can play in farm safety and a report on patterns in farm safety incidents. Some articles described farming as a dangerous industry, both as a result of the solitary and rural environment of the work and the type of equipment used. For example, one article noted that *“accidents in rural environments can be even more dangerous due to the time it can take for an injured person to reach a hospital [16].”*

Finally, 20% of coverage included both types of framing. For instance, an article published in Iowa highlighted the impact of factors such as COVID-19 and extreme weather events on farmer health and safety (landscape framing) as well as the role of individual farmers in making safe decisions (portrait framing) [17].

Alongside these acknowledgements of the hazardous nature of farming, about 6% of articles explicitly named the value of farmers and their work. In some cases, farming was portrayed as valuable because of its contribution to the economy: *“Last year Iowa agriculture harvested more than \$14 billion worth of corn and soybean [15].”* Alternatively, the value of farmers was also described in terms how the community could acknowledge their work, as when a government official commented, *“We all appreciate the important work our farmers do, and this time of year it is vital that we support and protect them by slowing down when you approach farm vehicles on rural roads [18].”*

Who is named as responsible for and called upon to take action to address farm and tractor safety issues?

Despite portrayals that evoked the value of farmers and their work, we found that news coverage placed responsibility for farm and tractor safety on individuals, rather than legislators, equipment manufacturers, or society at large. Of the 15 articles that explicitly assigned responsibility or blame for farm safety or incidents, 11 identified individuals at fault, three attributed incidents to a medical condition or emergency, and just one recognized the role of tractor manufacturers.

This message carried through in the one-third of articles ($n=29$) that issued some type of call to action. Of these articles, *all* called on individuals (farmers or community members) to take personal steps to improve farm and tractor safety. Often the tone of these calls to action appeared to place blame and responsibility on individuals.

‘The message I would give to those who work around farm machinery is, slow down and take your time, shut off your equipment, and lock out your hydraulics,’ Chambers said [19].

‘No one should die when they’re working at ag-related tasks. To make that a reality in feedyards, every operation needs a written safety procedure that is part of the facility’s standard operation procedure and is reviewed daily. Remind people every day, because we get busy, distracted and we tend to take shortcuts and risks [20].’

Just two of the 29 articles also called for policy or legislative change to improve farm and tractor safety.

‘Having funding for a ROPS rebate program in Iowa would do a lot to show support for new farmers in the state who often purchase older equipment to fit their budgets [21].’

What solutions to address farm and tractor safety are mentioned?

Only one-third of articles included a solution to support farm and tractor safety. When solutions were mentioned, there was a fairly even split between tractor (including equipment modifications and operational training) and non-tractor solutions (such as grain bin safety and supervision of children and visitors on-farm). There was some overlap between tractor and non-tractor solutions: 12% of articles mentioned both types. References to policy or funding to improve farm safety were notably absent.

While modifications to tractors represented the majority of tractor-related solutions mentioned in the news, few explicitly named ROPS. Despite the proven success of ROPS to improve farm and tractor safety, fewer than

10% of articles explicitly mentioned this solution. These mentions occurred in publications from Iowa, Nebraska, Missouri, and other communities. Publications from Kansas did not mention ROPS. Of the articles that mentioned ROPS, only two mentioned the NRRP. Overall, discussions of ROPS and the NRRP mirrored the findings described previously by Tinc et al. [9].

Discussion

This study was designed to help us understand how media is currently used to discuss and promote farm safety topics, and identify media advocacy opportunities to promote uptake of farm safety programs, including the NRRP.

As shown, agriculture is primarily featured in the media in response to events. Frequently, this coverage is in response to farm injury incidents and features speakers such as emergency responders and agricultural health and safety experts. These reports also highlight important steps that farmers themselves could take to prevent injuries, but fail to consider the larger societal forces that contribute to these actions (or lack thereof). As such, these reports often fail to highlight the actions that groups such as legislators, manufacturers, and society at-large can take to address farm safety issues. Collectively, these groups have more power to create change at a large scale than individual farmers. While these findings are somewhat expected and mirror findings from prior studies [4, 5, 22], there is room to grow in terms of using media as an advocacy tool or as part of a public health prevention strategy. By refocusing our attention on the context within which farmers work, media advocacy allows us to hold these with power accountable.

Notably, authentic voices appeared infrequently in the news coverage examined as part of this study. These individuals are important to overall media advocacy strategies in that they provide important and unique lived experiences. These experiences help community members and target audiences understand not only the issue at hand, but also the importance of any calls to action [23]. Though authentic voices were featured, it could be beneficial to share policy-related solutions with them and remind them of their unique position to advocate for those solutions.

The inclusion of government official and policy maker perspectives occurred even less frequently than authentic voices. While these individuals are generally the targets of media advocacy campaigns rather than contributors to them, findings from prior studies have demonstrated that policy makers speaking on behalf of occupational health and safety programs is reflective of formal (i.e. financial) support for those same programs [4].

As described throughout, a key factor in encouraging support from policy makers is providing frames

that connect the specific issues to wider contexts (landscape framing). Despite this, results of this review show that news about farm safety and health is generally presented in a portrait frame. As a result, these stories tend to evoke solutions that focus on personal responsibility while those that are framed more broadly tend to focus on the policies and institutions that shape the conditions around people.

From a media advocacy standpoint, the approach highlighted in these results (portrait framing and individual-level solutions) represents a missed opportunity. By reframing the issue to embrace the context and environment within which farm safety decisions are made, we increase our ability to make systemic change and position responsibility for change on decision-makers and government leaders. In addition, reframing messages and calls to action to incorporate aspects of social and governmental responsibility reinforces the important need to value the contributions of farmers and farming by doing our part to support and protect producers.

In relation to safety solutions, this study found that relatively few news stories highlighted a specific solution or call to action, especially for the most frequent cause of farm fatalities— tractor overturns. This is a missed opportunity to highlight two key components of media advocacy: the value of preventative efforts and to provide guidance to target audiences about what specific changes the community needs and wants.

Overall, the news reports identified in this study leaned heavily toward holding farmers responsible for improved safety rather than policy makers. While highlighting the role that farmers play in safety in the news can be an effective way to send an important message, it limits audiences from understanding how large-scale changes are necessary to improve farm safety. By speaking only to farmers and framing them as the sole party responsible for taking action to improve farm safety, journalists neglect to demonstrate structural solutions that could have more impact.

Limitations

This study focused exclusively on media published in four states and was specifically tailored to inform media advocacy efforts surrounding the NRRP. Additionally, only a random sample of new articles was qualitatively assessed. Thus, it is possible that the associated parameters could have altered the findings. Though true, other studies of farm safety and health news have reported similar results, so this limitation can be considered relatively minor.

Conclusions

Findings from this study are consistent with other studies on farm safety and health media coverage, regardless of the specific study foci [4, 5]. While other studies did

not exclusively focus on using media as an advocacy tool, analyses presented similar findings to those shared here, and together have demonstrated consistent room for improvement in regard to using media advocacy as a tool to support farm safety and health more broadly, including, for example, the NRRP.

Here, we outline several recommendations that farm safety and health stakeholders can apply as they conceptualize media advocacy campaigns:

1. The first recommendation for organizing media advocacy activities is to remember the mnemonic VIP, which refers to values, issue areas, and policies. Values relate to those community values, such as cooperation or prosperity, that will generate support for a particular call to action. Issues refers to how an issue area impacts the community at large. And finally, policies relate to any calls to action for systemic change needed to improve the issue.
2. Second, across these three areas, it is also important to take into consideration who is providing the messages. For example, in the 1990s, emergency room physicians were often used as authentic voices detailing the emotional toll of gun violence [24]. Similarly, first responders have previously spoken out about agricultural injuries, including tractor overturns [7]. These sentiments can help broaden farm safety topics to demonstrate the toll on the wider community, thus increasing the tension for change and the acknowledgement of social responsibility for the issue. Media advocacy campaigns can work with these authentic voices to help them understand the important role they play in conveying the need for societal change.
3. Finally, message framing is also important to consider to ensure that responsibility for improvements is appropriately placed. In many of the media frame examples in this study, as well as in others [4, 5], responsibility for ensuring safe farming is placed squarely with individual farmers (i.e. portrait frames). Unfortunately, this can place farmers in untenable situations where they are made aware of the occupational dangers they face, but have little agency to address them. For example, instead of focusing on the need for farmers to install ROPS on their tractors (an activity with well-documented financial and logistical barriers), framing messages around the need to support programs, such as the NRRP, that remove the barriers to installing ROPS, offers greater potential for sustainable changes.

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Author contributions

P.J.M. wrote the main manuscript text. K.M., P.M., S. P-S. led the data collection and analysis. P.J.M., A.J. and J.S. provided input on data collection and analysis. All authors reviewed the manuscript.

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Data availability

Data is provided within the manuscript. For more information contact the authors.

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Consent for publication

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Competing interests

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