Public Perceptions of Adult Mosquito Control Measures in the United States
Situation Analysis and Recommendations

Prepared exclusively for the Centers for Disease Control and Prevention

by

The American Mosquito Control Association

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Executive Summary

With the increasing occurrence of extreme weather patterns driving unprecedented shifts in insect populations around the world, risks related to vector-borne illness are rapidly growing in new and unexpected ways. Although mosquito control agencies strive to manage these risks through a wide range of strategies and tools, the responsible application of mosquito adulticides is the only reliable method to rapidly minimize the immediate threat presented by vector-borne diseases. Adult mosquito control methods are proven to provide a high level of efficacy without significant negative impact to the environment or public health. However, access to these tools is under increasing scrutiny due to a growing drumbeat of misinformation, scare tactics, and shifts in the means of information sharing. These factors are contributing to widespread public misconceptions about the scientific assessment, methods, and safety of adult mosquito control practices and the crucial role mosquito control agencies play in promoting the quality of life and protecting public health.

In an effort to better understand the dynamics of this situation and the impact it has on prevention and mitigation efforts, and to explore potential solutions to address it, the American Mosquito Control Association (AMCA) executed a survey and conducted an in-person workshop of relevant stakeholders working in, and adjacent to, public health efforts to manage vector-borne illnesses across the country.

Analysis of the survey and workshop results revealed two overarching findings:

1. **Misinformation is on the rise and it is impacting the ability of mosquito control programs to conduct their work.** While the findings indicated that the nature of public

sentiment varies widely by geography, it is clear that the spread of misinformation about mosquito and vector control is a common and consistent challenge across the country. This misinformation is driving misconceptions among local communities and impacts the ability of mosquito control organizations to fulfill their mission of protecting the public health.

2. **More proactive and consistent communication is needed.** Given the current challenges, assessment participants demonstrated overwhelming agreement about the need to increase and coordinate widespread efforts to raise awareness and understanding of the purpose, nature, and methods used in mosquito and vector control efforts throughout the country.

With misinformation on the rise, mosquito and vector control districts and other organizations providing mosquito management services to the public must be elevated and equipped to serve as the most trusted and reliable source of information about their work.

Specifically, participating workshop stakeholders recommended the creation of a nationally coordinated communications program that provided more consistent, proactive messaging and outreach for all agencies involved in vector control. Further, participants believe that given the widely fragmented nature of mosquito control operations and variations in resources, staffing, and vector activity across the country, any such effort should be designed to support both national consistency and local adaptation.

Additionally, the workshop identified four key recommendations with considerations for each to create a national communications program, including:

1. **Goals and objectives** – The national effort should be grounded in clear objectives that are realistic, measurable, and shaped by input from diverse representatives across the industry. Given the varying level of communications knowledge, resourcing, and sophistication among vector control agencies, the development of clear objectives will be key to the successful adoption and implementation of any materials that are created. Specifically, four key objectives for the national communication program emerged, including: (1) Position mosquito and vector control districts and agencies as the most trusted and reliable source of information about their work; (2) Establish alignment and clarity in how these organizations describe the purpose, nature, and methods used in their work; (3) Increase consistency in how these messages are implemented across national, state, and local levels; (4) Develop tools, resources, and other necessary messaging sources with an effective means of sharing these materials.

2. **Key strategies** – Drawing on best practices and lessons learned on the front lines, participants identified a wide range of strategies to help achieve these objectives. Top among these suggestions were: (1) Gather key representatives from across the country to inform and define adult mosquito control messaging that can be used consistently nationwide; (2) Revisit and develop an updated definition of Integrated Mosquito Management (IMM) with a corresponding visual that accurately conveys where adulticides and other control methods fit within the vector control toolbox; (3) Define, segment, and prioritize target audiences for a more clear and focused communications

and outreach plan; and (4) prioritize partnerships at the national and local levels with lawmakers, public health professionals, and conservation organizations.

3. **Methods for Implementation** – Given the hyper-local nature of mosquito and vector control efforts, any national program will need to be developed such that it can be easily adapted and implemented at the local level. Three specific methods to achieve this balance should include: (1) Curating and managing a national clearinghouse website with shared and adaptable resources to make it easy for local teams to get access to the latest tools, messages, and visuals when they need them; (2) Developing standardized website templates and content to ensure every district has an updated and cohesive virtual "home" featuring key messages, useful resources, and up-to-date maps and information about local risks and activities; and (3) Creating standardized social media recommendations, guidelines and toolkits to support local programs as they establish, build, and maintain their online outreach and presence.

4. **Recommended partners and stakeholders** – While there is broad consensus that partnerships are critical to improve communications and outreach, participants cited concerns and challenges with the time and effort needed to build and maintain these relationships over time. Feedback and discussion focused heavily on finding ways to help make partnership efforts more manageable, impactful, and complementary. Specifically, the 3 primary suggestions included (1) Developing and disseminating standard language that can guide partner outreach building on the key messages; (2) Creating a rubric or method of assessing and prioritizing which partnerships are most important; (3)

Conducting an analysis of current partnerships to identify gaps and opportunities for greater coordination in approach and relationships across regional geographies and at the national level.

Process & Methodology

This assessment was conducted by the American Mosquito Control Association (AMCA) to better understand the current nature, impact, and potential solutions available for addressing public perceptions regarding adult mosquito control measures throughout the United States. Specifically, the assessment focused on four key learning objectives:

1. Gauge the current nature of public perceptions about adult mosquito control measures
2. Determine the impact of current perceptions on mosquito control programs across the country,
3. Identify trends and best practices currently being utilized by vector management professionals across the country,
4. Explore challenges, unmet needs, and potential solutions to these challenges.

Process:

Input and findings were gathered from January 25 – March 4, 2024, in four key steps: an online survey (n=64), in-depth interviews (n=10), analysis of the survey and interview responses, and a live workshop at AMCA's Annual Meeting in Dallas, TX designed to explore and develop recommendations.

Stakeholder survey

The 23-question online survey was designed to gather initial feedback from a broad audience that could inform and narrow the areas of focus for the workshop. Survey responses were anonymous and were collected by AMCA via Survey Monkey from January 25 – February 16, 2024. The survey was distributed to a list of 175 contacts working in program leadership, education, and

outreach roles within mosquito and vector control abatement districts, public health agencies, and related organizations across the country. With a 37% response rate, the survey received 64 complete responses. The full list of questions and results can be found in Appendix 1.

In-Depth Interviews

During the same timeframe, ten 30-minute interviews were conducted with the goal of gaining deeper, more nuanced input on a similar set of questions from a similar population. The interview discussion guide focused on three key areas of exploration: current public perceptions and impacts on program work, current responses and best practices, and additional needs or potential solutions to further address these challenges (see Appendix 2).

Initial findings analysis

Following the completion of both the survey and the interviews, AMCA's investigators synthesized key findings from both sets of data to develop a summary report weaving together insights into one analysis. This report (see Appendix 3) included a set of recommendations for the focus, topics, and flow of the March 4th workshop and was also used as a pre-read to set the stage for workshop attendees. Key highlights from this report are reflected and discussed in the "Key Findings: Situation Analysis" section of this report. Generally, the findings demonstrated mixed experiences with the nature of public perception across districts and respondents. However, there was a shared concern about the rise of misinformation and its impact on mosquito control programs across the country. Respondents indicated a strong desire to see the industry take a more proactive stance in public communication and outreach and clear interest in

the concept of a nationally coordinated effort that could support this stance at both a national and local level.

One-Day Workshop

Drawing on the survey and interview findings, a one-day workshop was designed to further vet, explore, and build upon the concept of a potential national communication and outreach effort. The workshop was held on Monday March 4th, 2024, directly preceding the AMCA Annual Meeting at the Sheraton Dallas Downtown in Dallas, TX. Workshop agenda, facilitators guide, and discussion guide are included in the Appendix. With 29 attendees representing mosquito and vector abatement districts, local public health agencies, and national organizations including the Centers for Disease Control and Prevention (CDC), the workshop featured a mix of breakout activities and group dialogue. The discussions were divided into four key phases designed to inspire and engage participants through high-level, strategic, and tactical topics, including:

1. Group Session: Setting Context and Blue Sky Thinking
2. Breakout 1: Communications and Outreach Strategies
3. Breakout 2: Messaging and Implementation
4. Group Session: Visioning the Future

Data Analysis

Following the workshop, all input from the survey, interviews and workshop was gathered and distilled into a complete summary report. Like topics and input were grouped together to identify overarching themes and articulate core takeaways and recommendations.

Key Findings from Survey and Interview Results

Context for the Study

In mosquito and vector control programs, engaging with the public and building trust among local communities have long been core features of the job. However, the importance and complexity of these efforts has grown considerably in recent years. Declining trust in public institutions and government leaders – especially following COVID-era quarantine and public health measures – has fundamentally changed the way consumers make decisions about what they consider safe or effective. This dynamic, along with the rapid introduction of groundbreaking innovations, such as Artificial Intelligence-generated digital tools, has led to a politicization of science and technology, causing divisive disagreements about which voices and institutions should have authority on how scientific advancements are introduced and governed in our society.[1] In addition, changing patterns in news consumption have led to a proliferation of misinformation that makes it more challenging to reassure the public about the safety and integrity of mosquito control methods and products that are used in their communities.[2]

Against this backdrop, the communications burden placed on those conducting vector and mosquito control has only grown. Residents increasingly turn to social media, family, and friends for information. Furthermore, it has become ever more challenging to break through the noise and communicate clearly about already complex topics such as the scientific merit, methodology, and safety of adult mosquito control practices and the crucial role of adult mosquito management in protecting quality of life and public health.

[1] Edelman Trust Institute. (2024). 2024 Edelman Trust Barometer Global Report. Retrieved May 2024 from: https://www.edelman.com/trust/2024/trust-barometer

[2] APA. (2024). How and Why does Misinformation Spread? American Psychological Association. Nov 29, 2023 with last updates March 1, 2024. https://www.apa.org/topics/journalism-facts/how-why-misinformation-spreads

Recognizing this confluence of factors, the AMCA conducted an assessment with the goal of better understanding the nature of these pressures and their impact on mosquito and vector control program activities and exploring potential solutions to address these new challenges.

Specifically, the study sought to explore the following four learning objectives:

1. Gauge the current nature of public perceptions about adult mosquito control measures,
2. Determine the impact of current perceptions on mosquito control programs across the country,
3. Identify trends and best practices currently being utilized by vector management professionals across the country,
4. Explore challenges, unmet needs, and potential solutions to address these challenges.

The learnings from this study are outlined below. They were used to inform the design of the workshop, which is detailed in the following section, "Workshop Outcomes."

Current Nature of Public Perceptions about Mosquito Control Measures

Overall, participants described mixed experiences in the current nature of public perceptions surrounding their work. Sixteen percent cited negative sentiments (both general and extreme negativity), with 33% describing generally positive perceptions, while the largest share (39%)

believing that most of their community is disinterested or simply unaware of the work they do (see Figure 1).

Figure 1. Survey Responses Characterizing the Nature of Public Perceptions about the use of Mosquito Adulticides.

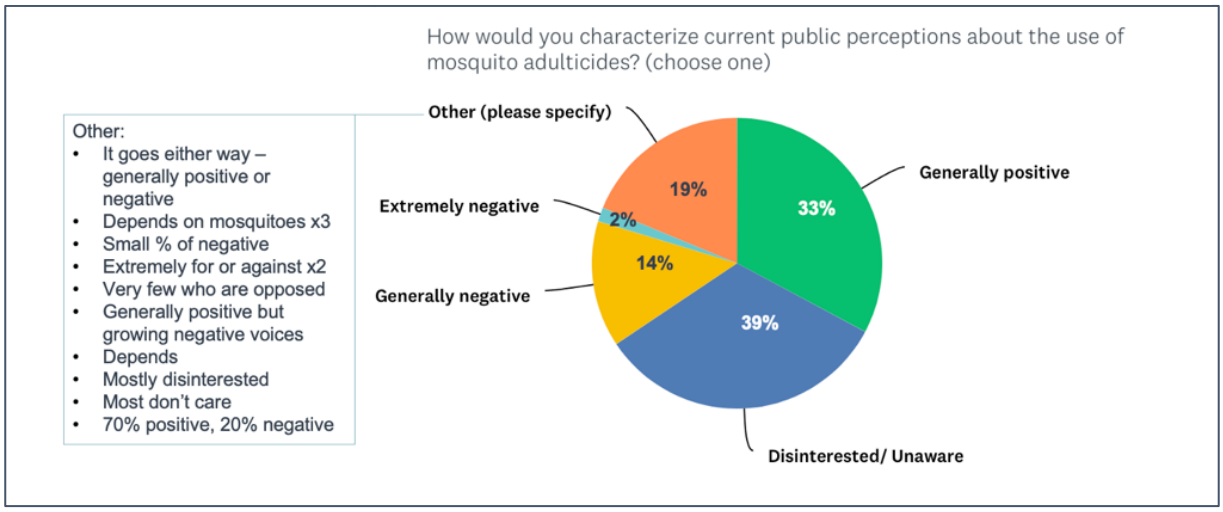
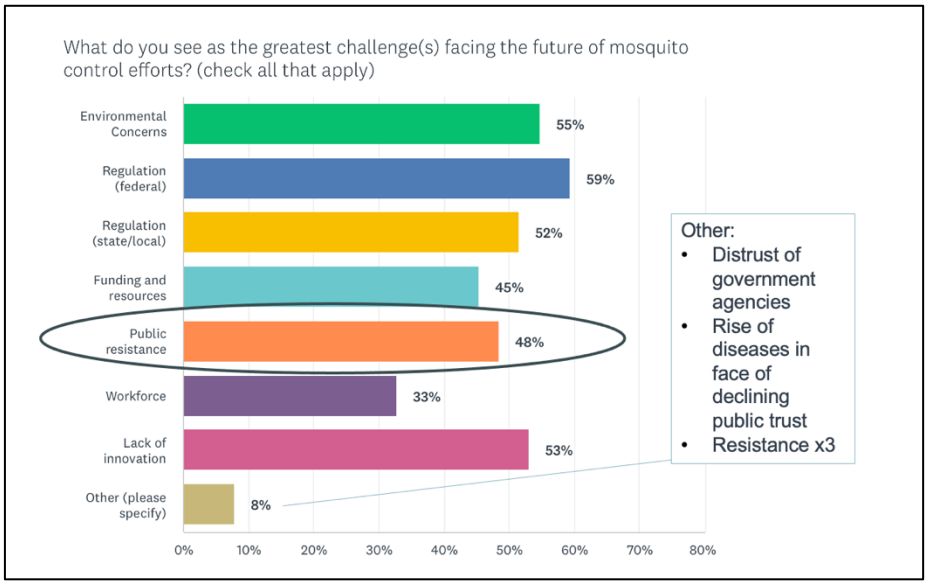


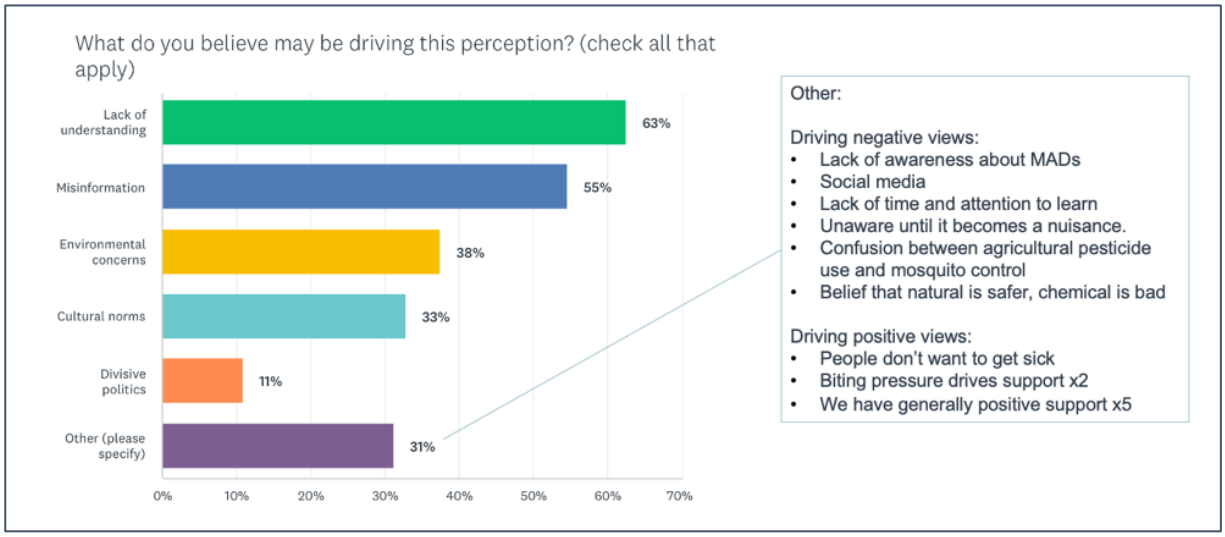
Figure 2 shows the top challenges facing the future of mosquito control, with "public resistance" identified as one of many concerns, ranked close to or on par with regulatory pressures, environmental concerns, and a lack of innovation in the industry.

Figure 2. Survey Responses Identifying Top Challenges Facing the Future of Mosquito Control.



Despite mixed experiences with public sentiment, feedback was aligned about the growing challenge of misinformation and the role that it plays in securing public support. When asked what seems to shape public sentiment in their region, survey respondents identified a general lack of understanding and misinformation as the top two factors that shape and inform local perceptions about their work (see Figure 3).

Figure 3. Survey Responses Outlining Key Factors that Drive Public Perceptions about Mosquito Control.



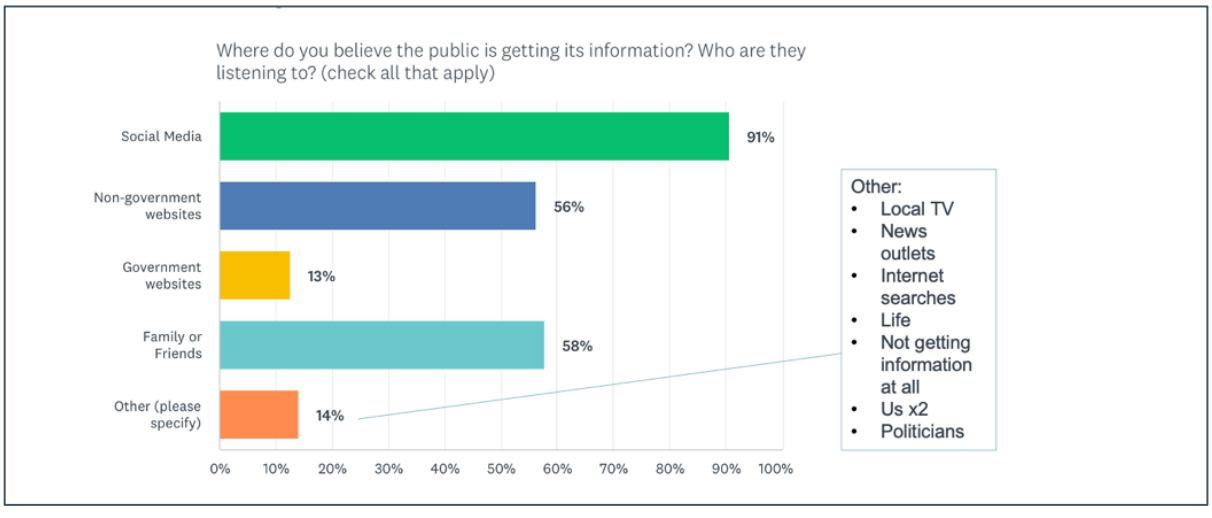
In interviews, responding to the same question, respondents also cited confusion about pesticides, public distrust in federal agencies, and the tendency for residents in their communities to turn to social media, friends and family for information and data that they could trust (see Figure 4).

Figure 4. Top Drivers of Public Perception Referenced in Interviews

- Lack of trust in government agencies (CDC, EPA)
- Conflation of pesticide use for mosquito control vs. agriculture
- People only care when directly affected, and by then it may be too late
- General lack of awareness about MADs and what they do
- Mixed geography
- Lack of historic exposure to mosquito control
- Confusion about adulticides, larvicides, and DEET

Interview feedback further revealed that addressing public sentiment is complicated by the general lack of interest in mosquito treatments until it is happening or on their mind. “People want information but only when they need it,” said one interviewee, referencing the inherent challenge of trying to drive proactive awareness and education in the absence of a pressing risk or need. As a result, especially in communities where overall awareness of mosquito control is relatively low, residents may not recognize their local district or agency as a reliable source of information when they do need it. Instead, as illustrated in Figure 5, survey respondents believe residents are turning to social media as their top source of information, with family and friends and non-governmental websites a distant second and third. In aggregate, this behavior contributes to the cycle of turning to friends and family, which in turn exacerbates the spread of misinformation. As one respondent said in the interviews, “It’s a lot of misinformation from social media. As it’s become a more important part of people’s lives, it is causing greater circulation of misinformation.”

Figure 5. Survey Responses about Trusted Sources for Public Information.



Impact of Current Perceptions on Mosquito Control Programs

Study participants report a direct impact from the rise in misinformation and vocal dissent on their ability to do their work. Specifically, they described the growing need to proactively address confusion and resident concerns in their community – even when it is just present among a small group of dissenters. In some cases, mosquito abatement districts bring in local authorities to offer protection from activist groups. "There is a small group who opposes our work," said one interviewee. "They chase our trucks, block us, so we just call the sheriff ahead of any treatment." Other impacts include needing to allocate additional resources for equipment, changes in workflow, increase in public communication, and additional outreach efforts (see Figure 6). Some respondents noted that small groups can demand outsized efforts, distracting teams that are already short on resources with high-touch engagement. "We spend 10-15 hours trying to change those 3-4 peoples' minds," explained one interviewee.

Figure 6. Specific Impacts of Misinformation on Mosquito Control Programs, as Cited in Interviews

- Absorbs already-limited resources
- Reduces staff capacity and drives down employee morale
- Increased need for managing social media presence and web content
- Greater local regulatory scrutiny and roadblocks related to increased vocal concerns
- Requirements to increase our engagement with local conservation orgs
- Greater needs for education and outreach efforts

Study participants also described a growing need to engage proactively with their communities about the safety and effectiveness of mosquito control technologies and tools (see Figure 7). With growing skepticism of regulatory processes and science used by federal agencies and a

rising fear of pesticides in the food system, residents can sometimes conflate agricultural uses with vector-related methods and applications. When this happened, mosquito abatement districts are often forced to address this confusion themselves. "More and more people are anti-pesticides and aren't willing to listen to reason as they don't trust any government or scientific authority," explained one survey respondent. These dynamics are further complicated by advocacy efforts, often aided by hyper-local neighborhood forums like NextDoor, which are designed to elevate local concerns and often focus on pesticides and chemical use in public spaces. These efforts fan the flames of fear and concern that often lead to misconceptions about the use of adulticides in mosquito control programs. As a result, local districts and agencies are sometimes put on the defense when explaining the purpose of their work and methods they use to control mosquitoes to residents who have not previously expressed any interest or concern about their programs. For those districts with limited capacity and staff focused on public information and outreach, this dynamic is placing additional strain and stress on staff that have not historically engaged in proactive communication.

Figure 7. Key Factors Driving the Need for Greater Public Engagement as Cited in Interviews.

- General government distrust and skepticism driven by politics, by Zika, and by COVID
- Anti-pesticide sentiments continue to rise
- Perceived toxicity and ineffectiveness of adulticides continue with misinformation
- Community platforms like NextDoor fan flames of vocal opposition
- Advocacy groups conflate mosquito control with environmental concerns like pollution & drought

Trends and Best Practices in Addressing Misinformation

In response to the rising pressures related to misinformation, most study respondents cited the need for some form of outreach designed to head off concerns in their communities. The breadth and nature of these efforts vary widely by district and depend heavily on resourcing and staffing

realities. As seen in Figure 8, survey respondents described a wide range of efforts, from increased education and awareness campaigns focused on the safety of adulticides to media relations, tailored messaging adapted by audience, partnerships with local organizations, and digital strategies including greater presence on social media and websites. The issue of transparency in mosquito control operations and methods was cited repeatedly, with acknowledgment that this has not always been the natural posture for the industry. "We weren't always as transparent with regards to treatments... but now we are trying to be more transparent," explained one interviewee. This sentiment was echoed in the survey, with one respondent commenting: "When we open up about what we're doing, the public seems fine with it." Another respondent said that demonstrating a willingness to engage with likely and also unexpected partners goes a long way to build trust with their community. "Humanizing our organization helps dispel rumors and partnering with would-be adversaries shows that we are truly committed to making an impact."

Figure 8. Survey Descriptions of Current Efforts to Address Perception Issues

- Education & awareness campaigns about benefits & safety of adulticides
- Community engagement strategies that are clear, transparent, and science-based communication strategies
- Partnerships and collaborations – local governments, community leaders, health orgs
- Messaging tailored to audience segments
- Feedback mechanisms to regularly received input about concerns
- Increased presence and content on social media and website
- Enhanced transparency in operations and decision-making processes
- Outreach events – community, fairs, public meetings
- Media relations to secure coverage for risk-related issues and about spray activity
- Training & professional development about importance of integrated approach and effectiveness of adulticides as part of it
- Public education programs focused on public and government officials

When asked about which proactive measure appears to be most impactful, best practices focused on personalized, transparent outreach, local partnerships, and taking an empathetic and respectful posture in outreach and tone (see Figure 9).

Survey and interview feedback underscored the importance of establishing messages that are designed to resonate in the realities of the current communication environment (Figure 9). While many key messages tend to be technical and scientific in nature, respondents cited finding the most success with language that is generally accessible and easy to understand. Transparency is also crucial. Finding opportunities to demonstrate an openness to explain why, when, and how mosquito control measures are conducted and a willingness to engage with the public – including those who may be opposed to some measures – are important aspects to a successful campaign. Transparency is especially critical in the current environment of eroding trust in public agencies. Frequency, clarity, and flexibility in communications is crucial to building and maintaining relationships in the community. As one survey respondent noted, "A transparent approach works for us. Humanizing our organization helps dispel rumors and partnering with would-be adversaries shows that we are truly committed to making an impact." Leading with empathy and

Figure 9. Best Practices for Outreach as Described in Survey and Interview Responses

Transparency is crucial: Providing transparent updates about what we're doing and why builds greater trust and understanding.

Language Choice: Referring to *treatments* instead of products and pesticides can help mitigate negative perceptions associated with these terms.

Face-to-Face Communication: Face-to-face conversations are crucial, especially with those who have questions. They build trust and demonstrate an openness to engage.

Collaboration and Partnership: Partnering with local government leaders, conservation groups, and public health organizations can help with public trust and awareness.

Traditional and Social Media: Utilizing media outlets and social media platforms to disseminate messages can reach a wider audience and increase public awareness.

Empathy and Respect: Treating people with empathy and respect, acknowledging their concerns, and engaging with them as equals.

respect, especially among concerned residents, helps position mosquito control districts and organizations as a reliable, accessible, and open resource for gathering information.

"There is no faster way to break trust with the public than to be paternalistic with them about the information that you share," said one interviewee, referencing a historic tendency to respond to questions and criticism with annoyance or a condescending tone.

In terms of specific messages, survey and interview responses indicated finding success by emphasizing tangible, practical actions that everyone can take to help reduce the risk of mosquito-borne illnesses (see Figure 10). Education about the nature of mosquito control and the Integrated Pest Management (IPM) or Integrated Mosquito Management (IMM) methods can also help drive understanding about how decisions are made, why applications and technologies are used and when. "Teaching people about our IPM toolbox and that we aren't simply 'throwing chemicals at the issue'" is especially important, according to one survey respondent. Sharing personal stories about those affected by the diseases these methods can help prevent, as well as the importance of preserving quality of life, can also help give a human feel to the work of abatement districts.

Figure 10. Best Practices for Messaging, According to Survey and Interview Responses

Practical Action: This is everyone's responsibility, and *we can all work together* to make an impact. This makes it more about the outcomes than the chemicals.

Disease Risk and Quality of Life: Highlighting the increased risk of disease transmission and the impact on quality of life.

Education and Information: Educating the public about mosquito control methods, the science behind them, and the reasons for specific actions to help dispel misconceptions and build understanding.

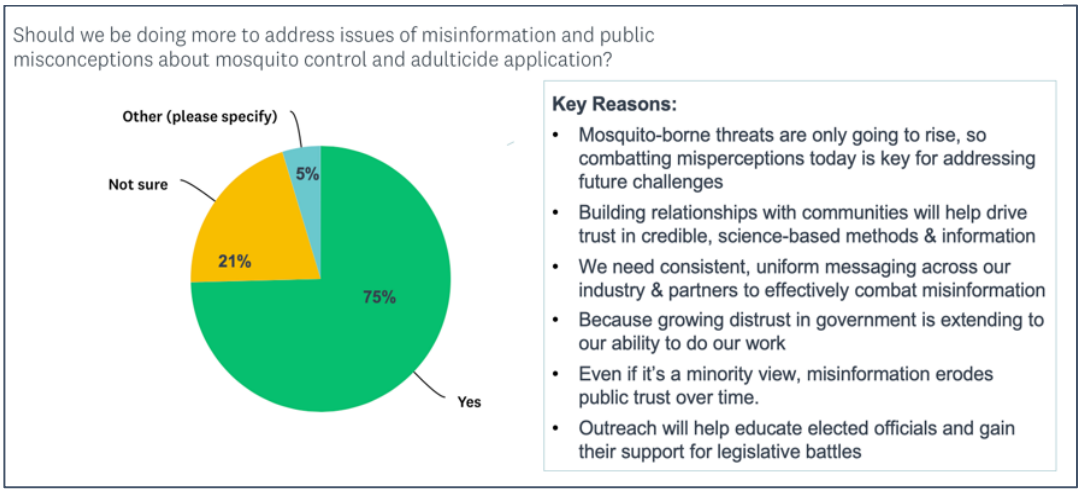
IPM Approach: Emphasizing the integrated pest management approach builds understanding and trust.

Personal Stories: Sharing videos of impacted families humanizes the issue and highlights the real-world consequences of mosquito-borne diseases.

Challenges and Unmet Needs

Overwhelmingly, survey and interview respondents agree there is a need for greater, more proactive efforts to address misinformation and public perceptions. Citing the expected rise and shifts in mosquito-vectored health threats, growing distrust and misperceptions, 75% of survey respondents said they would like to see more public outreach and engagement (see Figure 11).

Figure 11. Survey Responses about Need for Greater Public Engagement and Outreach



Specifically, respondents would like to see an increase in resources and support to provide a unified message by all districts across social media, traditional publications, website content. Partner support at all levels is also important, with recommended partners and supporters ranging from federal agencies like the CDC, Fish and Wildlife Services (FWS), the Environmental Protection Agency (EPA), and the U.S. Department of Agriculture (USDA), AMCA, environmental health organizations, county extension agents, media, and physicians (see Figure 12). While each geography inevitably faces unique challenges and circumstances, the responses underscored the value of a nationally coordinated message to synchronize efforts, amplify

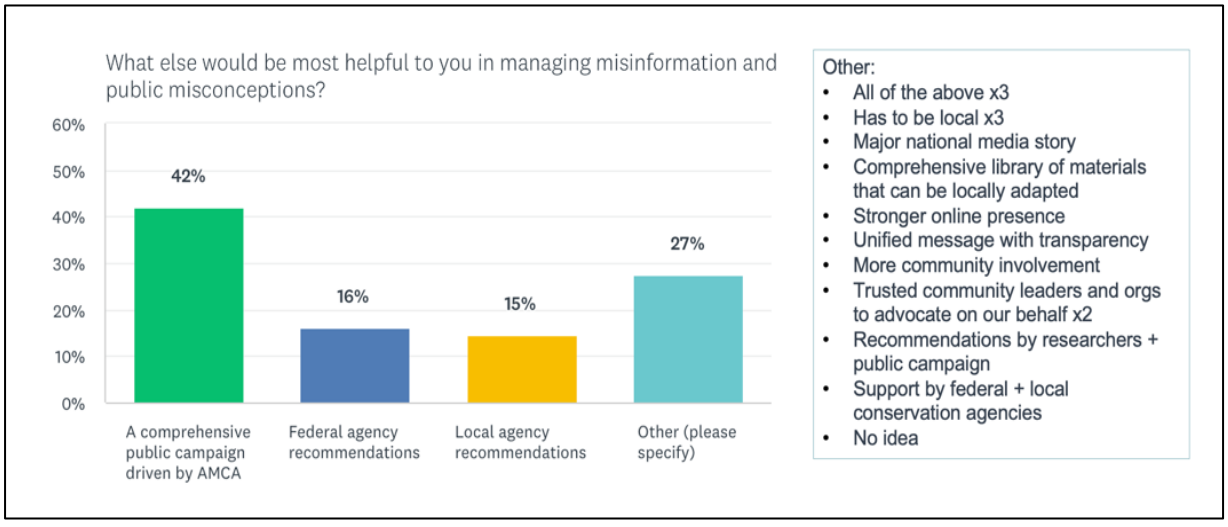
impact, and augment support especially for those organizations with less funding and resources to manage public outreach efforts. As one survey respondent said, "I think it takes all of us working together with the same information and goals to protect the public."

Figure 12. Recommended Partners for Increased Public Engagement, from Survey

- CDC (cited seven times)
- USDA, EPA, FWS
- Extension agents
- NPIC
- APHA
- AMCA, MVCAC
- Community leaders, elected officials
- Government regulators
- Social media influencers, celebrities
- State & Local health departments
- Academia & researchers
- Poison control centers
- Media
- Environmental health agencies
- Travel doctors
- Physicians, pediatricians, OBGYN

When asked what would be most helpful in driving increased public outreach, 42% of survey respondents indicated that a national campaign driven by the AMCA would be of help (see Figure 13). Noting that local efforts and adaptation will always be crucial, these findings demonstrate the desire, however, for coordination at the national level to deliver the consistency and support needed to amplify local messages and curtail misinformation. This strategy could be critical to ensure mosquito control programs are able to continue providing their services in the face of ongoing uncertainty and distrust.

Figure 13. Survey Responses about Additional Resources to Help Address Misinformation



Workshop Summary and Recommended Solutions

Building upon the findings outlined above, the AMCA team developed a one-day workshop designed to further vet, explore, and build upon potential solutions and recommendations to address the challenges posed by misinformation. Specifically, the concept of a potential national communication and outreach effort was explored and discussed in detail among the 29 attendees, some depicted in Figure 14, representing mosquito and vector abatement districts, local public health agencies, and national organizations including the Centers for Disease Control and Prevention (CDC), resulting in a series of recommendations in six key areas.

Figure 14. Attendees and discussion at the March 4th Workshop in Dallas, TX.

Develop a Nationally Coordinated Communication Program

Specifically, participating stakeholders recommended the creation of a nationally coordinated communications program to support more consistency in messaging and outreach strategies for all agencies involved in vector control. Further, participants believed that, given the realities of varying resources, staffing, and vector activity across the country, any such effort should be designed to foster national consistency and provide for locally adapted implementation.

For any such effort to succeed, workshop participants agreed that clear, reasonable, and realistic goals and objectives are crucial. Understandably, communication has not historically been a universal core strength for those working in mosquito and vector control organizations. Also, both the needs and expectations of a nationally coordinated campaign or communications program could vary dramatically based on the local issues. Workshop participants discussed the importance of ensuring that the objectives of a national messaging campaign be developed and defined to reflect the disparities in funding and resources, as well as the differing challenges faced by each district or geography. In discussing what goals might make sense for a national program, four recommended objectives emerged:

1. Position mosquito and vector control districts and agencies as the most trusted and reliable source of information about their work;
2. Establish alignment and clarity in how these organizations describe the purpose, nature, and methods used in their work;
3. Increase consistency in how these messages are implemented across national, state, and local levels;
4. Develop tools and resources, along with an effective method for sharing these materials.

In group discussion, participants recommended that these goals be further vetted with a wider variety of stakeholders as the national program is finalized and developed.

Key audiences were also addressed. Participants generally agreed that no communication program can successfully reach the entirety of the general public equally and that clarifying and/or prioritizing audience groups will also be a foundational key for success. While this topic warrants further analysis, there was consensus around prioritizing efforts to focus on the "moveable middle" members of the public who live in areas that have active mosquito control programs. As one participant stated: "We can reinforce and build trust with those who are open to it, but this effort [cannot] try to change the minds of the deeply opposed."

Participants also shared lessons learned and best practices from their own experiences on the front lines (see Table 1 below).

Table 1. Best Practices and Lessons Learned from Local Outreach Identified in the Workshop
**indicates any repeat mention or endorsement of an idea*

Best Practices	***Lessons Learned***
Public education about spraying*** • Advocacy – Washington days with AMCA Media training for all technicians w/ fact sheet** • Train the trainers – develop more advocates for vector control* • Utilize CEUs for applicators on safety & comms In-classroom K12 education programs* • Educating kids about basic entomology General transparency on MCD activities & data* • Embrace humility & empathy Engage with beekeeper groups* Messaging • Explaining science in lay terms • Visual comms to help offset negative misperceptions of how much AI is actually used • Data & guidelines from EPA/CDC to refer to, case studies • Reference that the back of the label is the law • Localizing national news stories to take advantage of timely opportunities such as malaria outbreaks Awareness • Communication around why we expand our efforts • Consistent communication about viruses to drive awareness • Public notification systems/sign-ups • Grassroots communications, house-to-house. Use of loudspeakers, flyers, community leader outreach	• "Opt-out" of spraying/no-spray zones** • Not being present in the community* • Appearance of being disorganized, not in control/mixed messages* • Lack of communication with agriculture • Calling adulticides a "last resort" • Having a pyramid for IMM that represents adulticides as a 'last resort' • Avoid non-target damage • Opposition within our own ranks o When our own applicators are not trained or don't trust that it is safe • Lack of experts in areas • Science/research opposing viewpoints – can research even be trusted? • Not treating for long period of time and then having to treat due to an outbreak • Contradicting, misaligned messages o Approaching different stakeholders with different messages • Avoid providing data to the public • Notification of spraying can lead to backlash

Build Alignment around Key Industry Messages

A frequent theme throughout the workshop was the need to establish a consistent message pertaining to the why, how, and what of mosquito control measures, particularly with regard to the use of adulticides. Participants noted that "we are getting in our own way" and that inconsistencies in how these topics are explained across mosquito control districts and geographies can cause unnecessary confusion and even lead to conflicting perceptions both within and across organizations. The core strategic recommendation was to gather a group of

key representatives from across the country to inform and define updated key messaging about mosquito control, in general, and adult mosquito control practices, specifically, that can be used consistently across the industry. As part of this effort, stakeholders would like to see the development of an updated definition of Integrated Mosquito Control (IMM) with a corresponding visual that accurately conveys where adulticides and other mosquito management methods fit in the standard vector control toolbox. Developing a nationally recognized definition of IMM in a consensus-oriented manner, would increase the chances for awareness, buy-in, and the common adoption of these core messages by professionals working across the country. Specific recommendations for messages were also discussed and prioritized, as seen in Table 2:

Table 2. Key Industry Messaging Ideas Discussed at the Workshop
**indicates any repeat mention or endorsement of an idea*

Rank/Category	***Theme***	***Message***
1	IMM Toolkit	Adult mosquito control is an essential tool in comprehensive multi-pronged mosquito control.*
2	Virus	Adult mosquito control is the only effective way to reduce vector-borne diseases when the virus is circulating*
3	Protection based on data	Adult mosquito control is used to protect human health and comfort based on trap/data collection (thresholds). ● Adult mosquito control is used to protect human health and comfort based on surveillance – *note not everyone is doing surveillance*. ● Includes arbovirus surveillance data, human case data, and IR testing data.
OTHER MESSAGES	• Adult mosquito control functions to protect human health and comfort. • Mosquito control can help prevent the spread of vector-borne diseases • The risk of diseases transmitted by mosquitoes outweighs the risk of pesticides for public health. • Adult mosquito control is effective to safe when used properly	
MESSAGE COMPONENTS	• Safety? Can we use the statement “reasonable risk”? • Effective: What does effective actually mean? • Avoid: Using the word chemical; “adulticide” – use “adult mosquito control” instead * • Considerations: Concerns with environmental harm*, Need something to validate our applications (trained applicators)	

In subsequent discussions, participants were asked to map out key message themes against their top priority audiences. A summary of this discussion is presented in Table 3.

Table 3. Priority Audience Groups with Key Goals and Themes from the Workshop
**indicates any repeat mention or endorsement of an idea*

Rank	***Audience***	***Recommended Goals & Messages***
1	Undecided or uninformed public – that "middle of the curve" audience	Objectives • Awareness about purpose of mosquito control, when to implement, value of our work to the public • Educate about our work, mosquitoes, decision thresholds • Convince them of safety/minimal risk, that we care about public health & environment • Build trust and support in local mosquito control teams • Become well known and trusted in community Our messaging • Should be confident & consistent • Grounded in needs of audience Key messages • The value of mosquito control** • What we do, IPM, adulticides just a tool in our toolbox • We are professionals, certified in this work • tools and resources to help educate others • Education about mosquito species, risks, behavior
2	City & County leaders • Local advocates • Jurisdictions • Administration	Objectives • Demonstrate our value, protect our resources • Educate the community about who we are, build trust • Foster support for IPM based on science, not politics* • Ensure more sustained funding, proactive instead of reactive* • Define at-risk populations Messages • Importance of sustained funding for our programs • Educate on restrictions – what we do and don't do* • Importance of regulations communicated to legislators • Public vs. private- how we function, how we are different • Mosquito control varies between agencies, capabilities change county to county • Economic benefits of our work (tourism, local support and demand)
3	Ourselves • Our own industry • Our 'boots on the ground workers' (technicians)	Goals • Clarity and alignment within our own ranks • Protect our resources
4	Other audiences • Young adults • Partners (extension, ag, F&W)	Goals • Make partners empowered to reinforce our messaging

Curate and Manage a National Clearinghouse for Shared Resources

Throughout the day, workshop attendees frequently referenced the need and desire to share useful outreach resources across organizations. Given the wide variation in outreach resources and capabilities, and the goal of increasing quality and consistency in public communication, participants suggested finding a method to formalize the gathering and sharing of useful communications tools and resources across the country. Specifically, there was strong endorsement around the idea of curating and managing a national clearinghouse website with shared and adaptable resources to make it easy for local teams to gain access to the latest tools, messages, and visuals when they need them. This website would need to be managed and supported by a national organization like the AMCA and have a user-friendly interface. AMCA should also drive awareness of the resource and ensure its managed and updated routinely.

Improve Local Program Website Coverage, Quality, and Content

Given the fragmented and hyper-local nature of mosquito control, any national program will need to be developed in a way that can be easily adapted and implemented at the local level. Ensuring that every local program has a strong and well-managed web presence is an especially crucial component of this effort, especially given the importance of accessing information online. Participants discussed potential ways to ensure a base-level of consistency by first ensuring each organization that provides mosquito control services has a web presence, and then providing tools and plug-and-play resources to make it cost effective and simple to ensure these websites provide consistent, up-to-date, reliable, and user-friendly content that can help inform residents about their local mosquito control programs. While many programs already invest in these

efforts, the reality is that the quality, depth, and management of these resources varies widely, with some programs completely unable to build websites at all.

As a potential solution, it was suggested AMCA could create a standardized website template with core content that can be easily and quickly implemented to ensure every District or Program has an updated virtual "home" featuring the same key messages, useful resources, and up-to-date maps and information about local risks and activities that are expressed by other districts regionally and nationally. Districts that have already developed more complex tools, such as interactive maps, expressed a willingness to help offer back-end code and support where reasonable, and the entire group of participants enthusiastically endorsed the idea of making this a top metric and priority for any future national investment.

Create Social Media Recommendations, Guidelines, and Toolkits

In a similar vein, workshop participants emphasized the importance of establishing national consistency in local social media presence for all organizations providing mosquito control services to their communities. There was a stated growing importance of remaining visible, accessible, and willing to engage with the public. Because people are already turning to social media platforms for information about matters of importance to their communities, participants agreed that the challenges and potential risks of having a social media presence are far outweighed by the benefits that these channels could provide. To support greater engagement across the board, participants discussed the potential of gathering best practices and build a standardized toolkit with easy-to-use social media recommendations, guidelines, and resources to support local teams as they establish, build, and maintain their online outreach and presence.

Strengthen the National Partner Network

While there is broad consensus that partnerships are critical to improve communications and outreach, participants cited concerns and challenges with the time and effort needed to build and maintain these relationships over time. Feedback and discussion focused heavily on finding ways to help make partnership efforts more manageable, impactful, and complementary by leveraging a national network and national support. Specifically, the three primary ideas included (1) Conducting an analysis of current partnerships to identify gaps and opportunities for greater coordination in approach and relationships across regional geographies and at the national level; (2) Creating a rubric or method of assessing and prioritizing which partnerships are most important; and (3) Developing and disseminating standard language that can guide local and regional partner outreach while building on the key messages developed for the national program.

Additional Ideas for Consideration

In addition to the above recommendations, workshop participants identified the following additional ideas for consideration:

1. Conduct a methodical assessment of the Return on Investment (ROI) and effectiveness of common outreach activities. Making the point that many top priority tactics – such as K-12 education programming – have been engrained in programs for decades and warrant a fresh look in light of today's shifting communication landscape and culture of misinformation.
2. Add communication principles and media training techniques into training for technicians to help build upon their skills as communicators.

3. Engage unlikely and unexpected allies, such as local beekeeper groups, to demonstrate that mosquito control is aligned with many well-respected groups that are working toward similar goals in public health and conservation.
4. Addressing opposition and misalignment within the industry and local organizations around the IMM toolkit and how adult mosquito control methods are discussed.

AMCA Mosquito Adulticide Perception Survey

SURVEY INTRODUCTION

Welcome to the AMCA Mosquito Adulticide Perception Survey. Thank you for taking the time to provide your input on this important topic.

The goal of this survey is to better understand the current nature of public perceptions about the use of mosquito adulticides and to explore the ways these perceptions impact the work of public health organizations in managing and preventing vector-borne illness.

Ultimately, we hope to identify potential solutions and next steps we can take to improve public perceptions. This survey should take approximately 20 minutes of your time and all feedback will be kept anonymous.

Thanks again for giving your thoughts and supporting our efforts.

SURVEY QUESTIONS

1. Which of the following best describes your professional affiliation? (select all that apply)
    a. CDC staff or other national public health agency
    b. Regional public health agency or organization
    c. Mosquito/Vector Abatement/Control District
    d. State/local government
    e. AMCA staff
    f. Industry
    g. Academia/Extension
    h. Other: _____
2. Which best describes the role or function you play in your organization?
    a. Director/Executive leadership
    b. Technical role/practitioner
    c. Communications
    d. Public education and outreach
    e. Other: _____
3. Does your program conduct mosquito adulticiding? If so, how?
    a. Not relevant to me
    b. Yes: Ground application only
    c. Yes: Air application only
    d. Yes: We do both
    e. No, we don't use adulticiding methods
    f. Other:
4. What do you see as the greatest challenge(s) facing the future of mosquito control efforts? [please rank in order of importance/urgency]
    a. Environmental challenges (climate change, weather patterns, etc.)
    b. Regulation (federal)
    c. Regulation (state/local)

   d. Funding and resources
   e. Public resistance
   f. Workforce
   g. Lack of innovation, new technology or new pesticides
   h. Other
5. How would you characterize current public perceptions about the use of mosquito adulticides? (choose one)
   a. Generally positive
   b. Disinterested/Unaware
   c. Generally negative
   d. Extremely negative
   e. Other: _____
6. What do you believe may be driving this perception? (all that apply)
   a. Lack of understanding or education
   b. Misinformation and fear mongering by opponents
   c. Environmental concerns
   d. Cultural norms & social aversion to chemicals
   e. Our divisive political environment
   f. Other: _____
7. Where do you believe the public is getting its information? Who are they listening to?
   a. Social Media
   b. Non governmental websites
   c. Governmental or other authoritative websites (NPIC, etc)
   d. Family or Friends
   e. Other: _____
8. Does this perception impact your ability – or that of others in your organization – to do your work?
   a. Yes
   b. No
   c. Not sure
9. Please explain & give examples if relevant: [open-ended]
10. How would you say public perception has shifted over the past 5 years?
   a. Declined
   b. Improved
   c. Stayed the same
   d. Other_
11. In answering question 10, if you feel perceptions are declining what type of application is of most concern?
   a. Aerial applications
   b. Backpack
   c. Ground (truck and ATV) applications
   d. Both
   e. Other:
12. Can you think of anything specific (techniques/campaigns/media) that might have led to this improvement or decline in perceptions? [open ended]
13. What do you expect the public perception to do in the next five years?
   a. Decline
   b. Improve

    c. Stay the same
    d. Other_

14. What, if any, measures are you taking to address these misconceptions or perception issues among the public? [open ended]
15. Are there any efforts led by other leaders or organizations that you find helpful in addressing these issues?
    a. Yes
    b. No
    c. If yes, please list the organizations.
16. Of all these efforts, which are most effective and why? [open ended]
17. More specifically, what public messaging have you found to be most impactful? [open ended]
18. In your view, should we be doing more to address issues of misinformation and public misconceptions about mosquito control and adulticide application?
    a. Yes
    b. No
    c. Not sure
    d. Other: _____
19. Why or why not? [open-ended]
20. What else would be <u>most helpful</u> to you in managing misinformation and public misconceptions?
    a. A comprehensive public campaign driven by AMCA
    b. Federal agency recommendations
    c. Local agency recommendations
    d. Other: [please list] _____
21. Who do you think is best positioned to get more involved? [open-ended]?
22. Do you have any final thoughts to share? [open-ended]

In-Depth Interview Discussion Guide

DISCUSSION QUESTIONS

[Perceptions & Impacts]

- How would you characterize current public perceptions about the use of mosquito adulticides in your geography?
    - Why do you think this is? What do you attribute this perspective to?
    - Where are people getting this information? Who are the most prominent voices?

- Does this perception impact your ability – or that of others in your organization – to do your work? If yes, in what ways?
    - Can you give me a specific example?

- Would you say this perception has changed or evolved in the last 5 years? How so?
    - How do you expect it to evolve in the next 5 years?

[Current responses]

- What, if any, measures are you taking to address adulticide perception issues among the public?

- How does your city/county/state notify the public that mosquito control methods will take place?
    - Do you have sustained communication campaigns reminding residents about the risk of mosquito-borne diseases? (describe messaging and format)
    - What kind of messaging do you use / see used in these efforts? (benefits of spraying, general 'fight the bite' messages, safe practices, etc.)

- Are there any efforts led by other leaders or organizations that help with these measures?
    - Of all these efforts, which of these are most effective & why?
    - Which of these are least effective?

- What do you think may be prohibiting or limiting mosquito control agencies in these efforts?

[Additional needs & Potential solutions]

- In your view, should we be doing more to address issues of misinformation and public misconceptions about mosquito control and adulticides? Why or why not?

- What else would be helpful in managing misinformation and public misconceptions?
    - If you had to rank these ideas in order of priority, what would be first?

- Who do you think is best positioned to take the lead in this? Why?
    - Who needs to be at the table?

- Do you have any final thoughts to share?

Mosquito Adulticide Perceptions Study – Initial Findings

February 22, 2024

CAPTIVATING CONSULTING LLC

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Introduction & Summary Findings

CAPTIVATING CONSULTING LLC

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Introduction

Overview & Objectives

Project Objectives

The AMCA Mosquito Adulticides Perception Project seeks to better understand the nature and impact of public perceptions about the use of mosquito adulticides on efforts to prevent outbreaks and mitigate vector-borne illness, and identify the best potential solutions and next steps to address misperceptions.

Purpose of this document

This study was designed to gauge perspectives about these topics to inform a workshop on March 4th, 2024.

The findings will be used to narrow the focus and topics of that workshop and maximize outcomes of the discussion.

Learning Objectives:

Specifically, we sought to explore the following topics:

- Perceptions & Impacts: Gauge the current nature of public perceptions and whether or how this is impacting the work of mosquito abatement districts across the country.
- Current Responses: Identify trends and best practices in how this issue is currently being addressed by the districts and other stakeholders.
- Needs & Solutions: Determine major unmet needs, desires, and potential solutions to be explored for addressing the situation.

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Introduction

Methodology

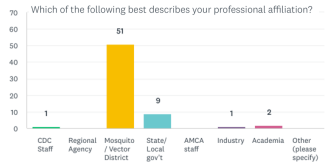
We fielded a simple qualitative study from January 25 – February 16, 2024 that included the following:

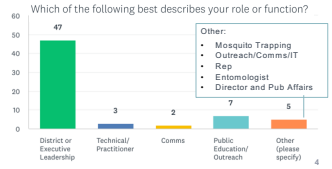
- Secondary Analysis
  - Review of previous reports and data from AMCA and the CDC
- Primary Research
  - Practitioner Survey (n=64)
  - Practitioner Interviews (n=10)

Verbatim key:

Quotes from in-depth interviews

Quotes from survey responses





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Summary Findings

What We Learned

Key Takeaways:

- Public perceptions about mosquito adulticiding appear to be mixed, ranging from extreme (and growing) support to vocal opposition, with many districts experiencing general indifference or a combination of all three.
- However, respondents widely agree that **misinformation is on the rise**, likely fueled by social media, public distrust, and the tendency for residents to turn to friends and family instead of Districts for reliable information and data.
- **There is a clear need for more proactive public outreach in all geographies.** In this environment, districts need to drive greater awareness and trust within their communities – especially before new threats or outbreaks occur.
- While many districts are actively engaging their community, **their efforts vary greatly** depending on funding and staff capacity. These barriers need to be addressed in order to increase outreach efforts across the board.
- Potential solutions to consider include:
  - A **nationally-coordinated** communications strategy to help guide consistent messaging by all
  - **Localized implementation**, with messages and tactics that are adapted for each district
  - Supported by **partnerships** at the national, state, and local levels, including AMCA, CDC, and others

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Summary Findings

Implications

For the workshop:

- Use these findings as a pre-read and thought starters to help seed the conversation
- Build on the consensus from the findings to explore and develop ideas for a nationally-coordinated communications strategy that can be adapted for local implementation.
- Key topics to explore include:
  - **Defining a coordinated communications program** – Goals, outcomes, audiences, scope
  - **Communications strategies** – Best practices, key learnings, creative ideas, potential partners
  - **Consistent messaging** – Key messages, tone, frequency, national vs. local adaptation
  - **Implementation** – Role of AMCA/CDC, tools & platforms, needs, resources

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Detailed Findings

CAPTIVATING CONSULTING LLC

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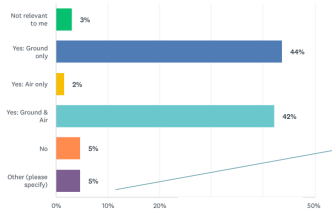
Districts report widespread use of adulticides

Most respondents report the use of some form of adulticiding, with ground application most common.

Does your program conduct mosquito adulticiding? If so, how?



Other:
- Education and surveillance as needed
- Ground only for now, but air application always under consideration
- By truck and foot (ground)

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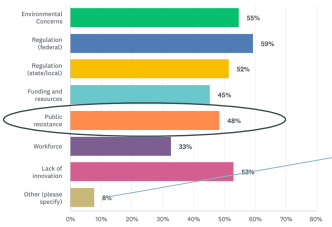
Perception one of many challenges for the future

Nearly half are concerned about public resistance, but regulatory and environmental issues are among the greatest shared concerns.

What do you see as the greatest challenge(s) facing the future of mosquito control efforts? (check all that apply)



Other:
- Distrust of government agencies
- Rise of diseases in face of declining public trust
- Resistance x3

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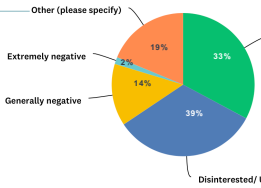
Public perception is mixed, depending on area

Only 16% see negative public sentiment about adulticides, though this could be due in part to generally low awareness about the practice.

How would you characterize current public perceptions about the use of mosquito adulticides? (choose one)



Other:
- It goes either way – generally positive or negative
- Depends on mosquitoes x3
- Small % of negative
- Extremely for or against x2
- Very few who are opposed
- Generally positive but growing negative voices
- Depends
- Mostly disinterested
- Most don't care
- 70% positive, 20% negative

[Perception] really depends on where you live in the county and on the biting pressure. Over time I'm seeing more support for spraying.

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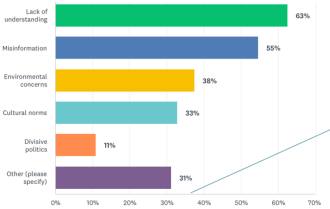
Lack of understanding shapes perceptions

Lack of understanding and misinformation among the public generally drive the way the public responds to mosquito control.

What do you believe may be driving this perception? (check all that apply)



It depends on where you live in the county and on biting pressure. Over time I'm seeing more support for spraying.

Other:

Driving negative views:
- Lack of awareness about MADs
- Social media
- Lack of time and attention to learn
- Unaware until it becomes a nuisance.
- Confusion between agricultural pesticide use and mosquito control
- Belief that natural is safer, chemical is bad

Driving positive views:
- People don't want to get sick
- Biting pressure drives support x2
- We have generally positive support x5

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Disinterest and public trust are also challenges

The combination of growing distrust in public agencies and the general lack of interest in mosquito treatment until it is top of mind can make outreach very challenging.

In the interviews, these were the key drivers of perception issues:
- Lack of trust in government agencies (CDC, EPA)
- Conflation of pesticide use for mosquito control vs. agriculture
- People only care when directly affected, and by then it may be too late
- General lack of awareness about MADs and what they do
- Mixed geography
- Lack of historic exposure to mosquito control
- Confusion about adulticides, larvicides, and DEET

When people no longer enjoy the outdoors, they become very supportive of our efforts.

We see mixed views about spraying due to the urban/suburban nature of our community, infrequent use of adulticiding, and our regular communication and outreach.

There definitely is a vocal minority who hate any use of pesticides, but generally what we see here is that people want us to do more.

The biggest issue is that there is conflation of ag pesticide use and mosquito pesticide use.

Ever since the aedes mosquito arrived it increased a lot of awareness about the importance of what we do.

People want information but only when they need it.

People are either ok with it or they don't care.

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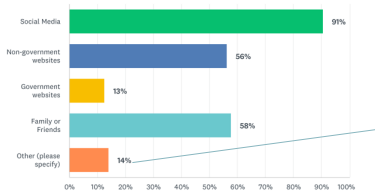
People turn to social networks for information

Most residents turn to social media or friends and family to shape their views on mosquito control, instead of coming directly to the districts for data and facts.

Where do you believe the public is getting its information? Who are they listening to? (check all that apply)



People see things on tik tok, social media, google.. or they might go to home depot and ask for advice.

Other:
- Local TV
- News outlets
- Internet searches
- Life
- Not getting information at all
- Us x2
- Politicians

It's a lot of misinformation from social media - as it's become a more important part of people's lives, it is causing greater circulation of misinformation.

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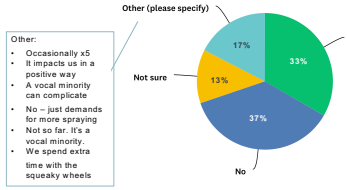
Public perception directly impacts district work

Addressing vocal concerns – even among small groups – requires additional resources for equipment, changes in workflow, communications, and outreach efforts

Does this perception impact your ability – or that of others in your organization – to do your work?



Other:
- Occasionally x5
- It impacts us in a positive way
- A vocal minority can complicate
- No – just demands for more spraying
- Not so far. It's a vocal minority.
- We spend extra time with the squeaky wheels

We had to make some adjustments and get some software to track those no-spray zones so they get alerts - so it solves the problem but that was a big expense.

There is a small group who opposes our work - they chase our trucks, block us, so we just call sheriff ahead of any treatment.

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Most agree more public outreach is needed

In areas with both positive and negative sentiments, district staff are doing more communication and community engagement – online and offline.

Please explain your previous answer & give examples if relevant.

Specific impacts from public perception:
- It's a resource suck that reduces staff capacity and drives down employee morale
- Greater emphasis on managing social media presence and web content
- Greater regulatory scrutiny and roadblocks related to increased vocal concerns
- Requirements to increase our engagement with local conservation orgs
- Greater needs for education and outreach efforts

Positive ways
- Greater support – and demand – with new and growing threats like the Aedes mosquitoes

We spend 10-15 hours trying to change those 3-4 peoples' minds.

More and more people are anti-pesticides and aren't willing to listen to reason as they don't trust any government or scientific authority

Sometimes we just don't want to deal with the people who disagree. We are very comfortable with "this is how it's always been done."

We need to control the narrative but higher leadership does not understand.

We have a very supportive community. They are generally positive about what we do.

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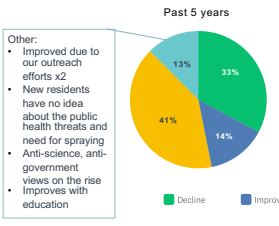
Future expectations about perception are mixed

Respondents expect public responses to adulticiding will continue to remain varied in the future years.

Changes in Public Perception



Other:
- Improved due to our outreach efforts x2
- New residents have no idea about the public health threats and need for spraying
- Anti-science, anti-government views on the rise
- Improves with education

Other:
- Classic messaging no longer a solution
- More research on behavior change is imperative
- Our mosquitoes and vectors will only get worse
- Hope to see improvement with our PR efforts
- Expect steady improvement through education

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Skepticism about public health is a major factor

Trends in public skepticism and online community platforms are expected to be the key forces behind ongoing shifts in public perception.

Can you think of anything specific (techniques/campaigns/media) that might have led to this improvement or decline in perceptions?

Specific factors driving trends in public perceptions include:
- General government distrust and skepticism driven by politics, by Zika, and by COVID
- Anti-pesticide sentiments continue to rise
- Perceived toxicity and ineffectiveness of adulticiding continue with misinformation
- Community platforms like NextDoor fan flames of vocal opposition
- Advocacy groups conflate mosquito control with environmental concerns like pollution & drought

One of the biggest issues for me in general is mistrust of government organizations which extends to CDC and the EPA.

There has been a decline in support of the use of pesticides but this is offset by intolerance of invasive Aedes.

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Most districts are doing some form of outreach

Breadth and nature of outreach varies widely by district and depends heavily on resourcing and staffing realities.

What, if any, measures are you or your organization taking to address misconceptions or perception issues among the public?

- Education & Awareness campaigns about benefits & safety of adulticides
- Community engagement
- Communication strategies that are clear, transparent, and science-based communication strategies
- Partnerships and collaborations – local governments, community leaders, health orgs
- Messaging – tailoring to audience segments
- Feedback mechanisms – to regularly received input about concerns
- Social media and web presence – most if not all districts have a presence, though the ability to maintain effectively depends on resources

As much as we hate dealing with [vocal opposition], it has really pushed us forward in terms of progress.

- Transparency in operations and decision-making processes
- Outreach events – community, fairs, public meetings
- Media relations to secure coverage for risk-related issues and about spray activity
- Training & professional development about importance of integrated approach and effectiveness of adulticides as part of it
- Public education programs focused on public and government officials

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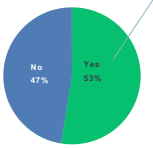
Many look to partners for support and resources

Half of respondents said that outreach by other organizations is helpful for their needs. Specifically, they value education, engagement, PR, and tailored local outreach

Are there any efforts led by other leaders or organizations that you find helpful in addressing these issues?



Organizations listed
- Mosquito & Vector Control Ass'n of CA
- NPIC, EPA, NACCHO
- AMCA x5
- CDC x5
- National & Local MC Ass'ns
- MVCAC, AMCA, UC Extension
- Legal Office of Education
- California districts
- FMCA, AMCA, FASD
- RISE x4
- NJOMCC, NJDPH
- ESA, Farm Bureau
- Specialty Districts Associations
- Specialty Pesticide Users
- Centers of Excellence

Most effective outreach efforts:
- Local ordinances permitting mosquito control without obstacles
- Public relations
- Community engagement – both at medium-sized events and 1:1
- Creating greater awareness of the public health risks – shifting the focus from pesticides to the diseases
- Tailored, localized efforts are most impactful
- Education efforts with focus on classroom outreach, Liaising with HOAs and neighborhood advocates
- Visibility at community events promotes a sense of transparency and openness

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Our messaging must be transparent and clear

Districts find success with messages that focus on building a connection with communities through partnership, practical information, and personal stories.

What public messaging have you found to be most impactful?

Practical Action: This is everyone's responsibility and ***we can all work together*** to make an impact. This makes it more about the outcomes than the chemicals.

Disease Risk and Quality of Life: Highlighting the increased risk of disease transmission and the impact on quality of life.

Education and Information: Educating the public about mosquito control methods, the science behind them, and the reasons for specific actions to help dispel misconceptions and build understanding.

IPM Approach: Emphasizing the integrated pest management approach builds understanding and trust.

Personal Stories: Sharing videos of impacted families humanizes the issue and highlights the real-world consequences of mosquito-borne diseases.

Teaching people about our IPM toolbox and that we aren't simply "throwing chemicals at the issue"

Talking about disease risk to susceptible subpopulations, and reminding people how lucky we are not to have man other mosquito-borne disease because of our control programs.

When we open up about what we're doing, the public seems fine with it.

Teaching people about mosquitoes get a surprised and interested reaction and opens the door to explaining our work.

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Public education is key to building trust

Communicating more frequently and openly about our work can go a long way to building relationships and building trust.

We weren't always as transparent in regards to treatments... but now we are trying to be more transparent. Honestly, localized efforts are the most effective.

Once we explain everything, they are extremely supportive. Explaining that we don't [spray] often but when we do there are very specific reasons why can help.

Dump and scrub is the most important message. We used to say dump and drain, and now it's dump and scrub.

Our 3 key messages: Removing standing water, using insect repellent, and we care about mosquitoes because they can transmit diseases - not necessarily just because they are pesky. It puts people into "what is my risk for that" and "what can we do" mindset.

Folks are not aware of what we use unless we tell them directly. They mistake larvicides for adulticides.

There was a lot of public distrust before, due to the prior leader here. When that changed, and we filled my [outreach] role, it improved our relationship with the community.

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We must act and sound like humans

If we want to establish ourselves as the trusted resource for information, a combination of social media, face-to-face, and partner-oriented outreach is key.

Transparency is crucial: Providing transparent updates about what we're doing and why builds greater trust and understanding.

Language Choice: Referring to *treatments* instead of products and pesticides can help mitigate negative perceptions associated with these terms.

Face-to-Face Communication: Face-to-face conversations are crucial, especially with those who have questions. They build trust and demonstrate an openness to engage.

Collaboration and Partnership: Partnering with local government leaders, conservation groups, and public health organizations can help with public trust and awareness.

Media and Social Media: Utilizing media outlets and social media platforms to disseminate messages can reach a wider audience and increase public awareness.

Empathy and Respect: Treating people with empathy and respect, acknowledging their concerns, and engaging with them as equals.

There is no faster way to break trust with the public than to be paternalistic with them about the information that you share

A transparent approach works for us. Humanizing our organization helps dispel rumors and partnering with would-be adversaries shows that we are truly committed to making an impact.

If we could get more environmentalists and trusted conservation agencies on board with AMCA that would be a huge help.

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We need a variety of formats and platforms

In addition to social media, districts cite visual tools, publications, and local government outreach as impactful strategies at the local level.

Social media is really important. It is a key piece to our messaging and somebody should dedicate time to reels, posts, etc.

Our education coordinators they heavily rely on tik tok because they are reaching out to students. We use different platforms to reach as many people as possible

We need more publications that target arguments against the use of adulticides that can be used to disarm concerns.

With the introduction of invasive species, we started doing a lot more adulticiding and we did get a lot more outreach. Even local governments and cities had questions.

But once we started to establish those relationships, met with leaders and governments regularly, people seemed to kind of understand. After those first couple of years we didn't get a lot of major organized pushback at all and now it's pretty routine

The more we can show them, visually, what our work looks like the better. Tours of our facilities, images of sprayers

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We need partner involvement at all levels

A coordinated communications effort across all organizations, at local and national levels, will be key for supporting our districts.

Who do you think can and should get more involved in addressing public misconceptions?

Who should be involved:
- CDC x7
- USDA, EPA, FWS
- Extension agents
- NPIC
- APHA
- AMCA, MVCAC
- Community leaders, elected officials
- Government regulators
- Social media influencers, celebrities
- State & Local health departments
- Academia & researchers
- Poison control centers
- Media
- Environmental health agencies
- Travel doctors
- Physicians, pediatricians, OBGYN

I think it takes all of us working together with the same information and goals to protect the public.

Perhaps AMCA could work to put together a members area of the website to provide resources to help disarm the most common objections to the use of adulticides.

People won't listen. They don't realize that if they did not have us, things would be a lot less environmentally friendly.

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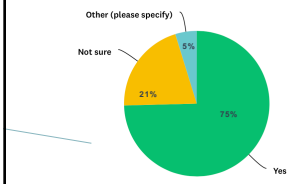
Overwhelming agreement about more outreach

There is clear consensus that we must be doing more to proactively address pubic perception – not just about adulticiding, but about everything we do.

Should we be doing more to address issues of misinformation and public misconceptions about mosquito control and adulticide application?



Key Reasons:

- Mosquito-borne threats are only going to rise, so combatting misperceptions today is key for addressing future challenges
- Building relationships with communities will help drive trust in credible, science-based methods & information
- We need consistent, uniform messaging across our industry & partners to effectively combat misinformation
- Because growing distrust in government is extending to our ability to do our work
- Even if it's a minority view, misinformation erodes public trust over time.
- Outreach will help educate elected officials and gain their support for legislative battles

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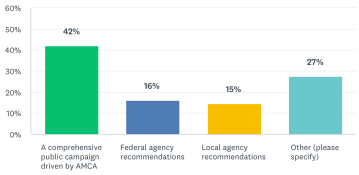
Nationally-coordinated campaign could help

Most districts agree that localization is key for any outreach, but national coordinated campaigns can help.

A comprehensive public campaign from AMCA would be wonderful. And I think having our local, state, and federal agencies make an effort to stop misinformation would be quite helpful.

What else would be most helpful to you in managing misinformation and public misconceptions?



Other:

- All of the above x3
- Has to be local x3
- Major national media story
- Comprehensive library of materials that can be locally adapted
- Stronger online presence
- Unified message with transparency
- More community involvement
- Trusted community leaders and orgs to advocate on our behalf x2
- Recommendations by researchers + public campaign
- Support by federal + local conservation agencies
- No idea

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Final Thoughts

Respondents would like to see a coordinated, proactive, adaptable effort to support greater outreach across the board.

Key themes:

- We need constant proactive messaging to counter misinformation and build public trust.
- Don't overlook the positives – many districts are doing very well in public outreach and receive strong positive support from their communities
- Need more public education about repellents
- AMCA could create more content & online presence
- Deep mistrust of federal government and science poses a challenge to our efforts
- Need more toolkit materials and expertise to shore up local districts
- We have to focus beyond adulticide use and also address objections to larvicides

Proactive is key. Waiting until a Zika event to come out of the shadows just causes distrust.

Finding a way to improve our public perception is more important now than ever

AMCA can play a role in developing toolkits to programs, and academic/CDC partners can potentially help bring in outside expertise, so that this burden is not borne solely by the boots on the ground.

We need a unified message and specific response strategies for common misinformation and conspiracy theories.

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Welcome!

to the

Mosquito Adulticides Perception Workshop

1

1

Introduction & Overview

Dave Brown, AMCA
Cat O'Shaughnessy Coffrin, Captivating Consulting

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Your Hosts & Facilitators

Who we are

Lead Facilitators

- Dave Brown, AMCA
- Cat Coffrin, Captivating Consulting

CDC Observers

- **Roxanne Connelly, PhD, BCE,** Chief Entomologist, Entomology and Ecology Team Lead
- **Maggie Silver,** Assoc. Director of Communications

CDC Table Facilitators

- Nicole Foley – Table #1
- Holley Hooks – Table #2
- Katherine Ficalora – Table #3
- Ryan Hemme – Table #4

3

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Why We're Here

Meeting Objectives

Our goals for today

1. Discuss the nature and impact of public perceptions about mosquito adulticiding
2. Explore the need and potential for a nationally coordinated communications program
3. Develop ideas & recommendations for how this might work

Rules of the road

- ***Be present.*** No phones or laptops!
- ***Be kind.*** Let others speak.
- ***Be brief.*** We have an ambitious agenda and will stick to our timing.
- ***Speak up!*** We need to hear you!

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How We'll Spend our Time

Meeting Agenda

Breakfast/Arrivals	7:00 – 7:30
Welcome & Introduction	7:30 – 8:00
Group session 1: Setting the Context	8:00 – 9:15
BREAK	*9:15 – 9:30*
Breakout 1: Communications & Outreach Strategies	9:30 – 11:15
LUNCH	*11:15 – 12:00*
Breakout 2: Messaging and Implementation	12:00 – 1:45
Group Session 2	1:45 – 2:30
Adjourn	2:45

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Warm-Up

Getting started

At your tables:

- Share your name & affiliation [5 minutes]
- Work together to answer this question: [10 minutes]

"If our industry was a public figure, who would we be and why?"

- Pick one person to share with the group [1 min per group]

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Overview of the CDC

Roxanne Connelly & Maggie Silver, CDC

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DIVISION OF VECTOR-BORNE DISEASES

CENTERS FOR DISEASE CONTROL AND PREVENTION

NATIONAL CENTER FOR EMERGING AND ZOONOTIC INFECTIOUS DISEASES

What does the CDC do?

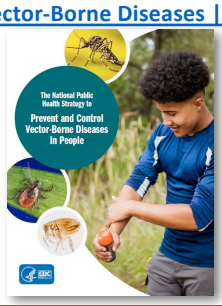
Roxanne Connelly, PhD
Maggie Silver
Centers for Disease Control and Prevention

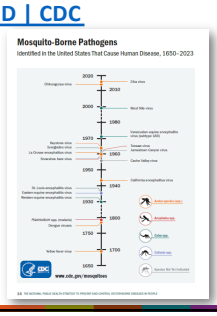
Miscommunications about Adulticides - Workshop
March 4, 2024
AMCA 90th Annual Conference
Dallas, TX

The findings and conclusions in this presentation are those of the author and do not necessarily represent the views of the Centers for Disease Control and Prevention.

8

VBD National Strategy to Protect People | Division of Vector-Borne Diseases | NCEZID | CDC





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Arboviral Diseases Branch (ADB)

~65 Staff

- Administration professionals
- Biologists
- Entomologists
- Epidemiologists
- Health communications specialist
- Microbiologists/virologists
- Physicians

- Diagnostics and Reference Team
- Entomology and Ecology Team
- Surveillance and Epidemiology Team
- Virology Team
- Program Management
- Policy and Communication

Core Functions

- Technical assistance
- Health communication
- Surveillance
- Diagnostic testing
- Training
- Maintaining laboratory capacity
- Research
- Outbreak response
- Extramural & partner coordination/collaboration
- Branch administration

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Diagnostics and Reference	Surveillance and Epidemiology	Entomology and Ecology	Virology
▪ Produce/distribute arboviral diagnostic reagents	▪ Consultations/technical assistance – Clinical cases – Outbreaks/clusters – Surveillance – Vaccines	▪ Consultations/technical assistance – Vector surveillance – Vector control – Insecticide resistance – Transmission cycles	▪ Pathogen discovery and characterization
▪ Primary/reference diagnostic testing	▪ Analytic/special studies	▪ Vector identification and testing	▪ Molecular epidemiology technical guidance
▪ Testing to support outbreaks/ field studies	▪ Outbreak response	▪ Vector competency testing	▪ Pathogenesis technical guidance
▪ Proficiency program for domestic and international partners	▪ Health communication	▪ Field investigations	▪ Outbreak response
▪ Technical guidance and training	▪ Technical guidance and training	▪ Technical guidance and training	▪ Intramural and collaborative research
▪ Strategic international partnerships		▪ Outbreak response	▪ Test development and improvement
▪ Outbreak response			
▪ Extensive regulatory compliance activities			

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ADB Branch "Goals"

- Reduce burden of arboviral neuro-invasive disease in the United States.
- Proactively prepare for emerging/re-emerging arboviral pathogens in the United States.
- Optimize surveillance and diagnostic testing, and related guidance, for arboviral infections.
- Enhance use of arboviral vaccines and other medical countermeasures to reduce disease burden and risk.
- Provide essential core functions to recognize, detect, prevent, and respond to domestic and international arboviral disease threats.
- **By 2031, reduce incidence of West Nile neuroinvasive disease by 35% and West Nile virus-related deaths by 60% compared with the average annual incidence during 2011-2020.**

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The Challenge

- 535 recognized arboviruses (~150 arboviruses known to cause human disease)
- Spatiotemporal variability – outbreaks are **not** "yet" predictable
- Most often non-specific clinical presentations
- Laboratory diagnostics complicated and challenging

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The Challenge

- Mosquito control limited by few effective insecticides / insecticide resistance
- Mosquito control capacity not uniformly distributed in United States
- Future introductions of exotic arboviruses into United States are likely
- Vaccines not available for majority of arboviral diseases
- No specific therapeutics
- Vulnerable populations (elderly, immunocompromised, lower SES)
- Climate change

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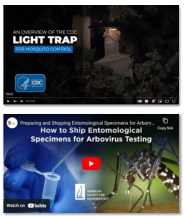
For Professionals



CDC mosquito control for professionals
https://www.cdc.gov/mosquitoes/mosquito-control/professionals/index.html

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For the Public

CDC Fight the Bite Website (coming soon)
www.cdc.gov/Fight-The-Bite

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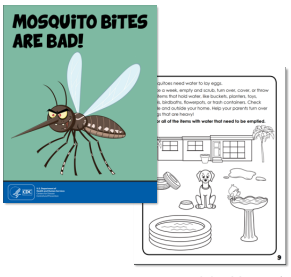
For the Public

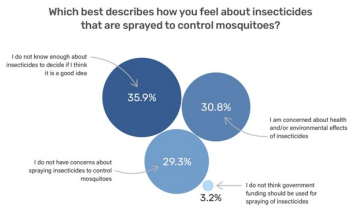


CDC-INFO On Demand Publications:
https://wwwn.cdc.gov/pubs/CDCInfoOnDemand.aspx

17

Better Communication

- Almost half of respondents didn't know whether their community sprayed
- Only 3 in 10 people didn't have concerns about spraying insecticides
- When asked about aerial and truck spraying, respondents were most likely to support *if certain criteria were met* (positive mosquitoes or human disease)



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Consumer Styles Survey

- Annual series of surveys among 6,000 U.S. adults and 800 youth
  - Randomly recruited using probability-based sampling by address
  - Data is weighted to match U.S. Current Population Survey (CPS) proportions for gender, age, household income, race/ethnicity, household size, education, census region, and metro status.
- PNPS core questions capture consumer attitudes, values, and behaviors in a variety of areas including health and nutrition
- Client-suggested questions

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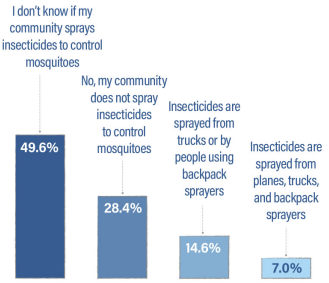
Almost half of respondents did not know if their community sprayed for mosquitoes



Q: Does your community spray insecticides to control mosquitoes?

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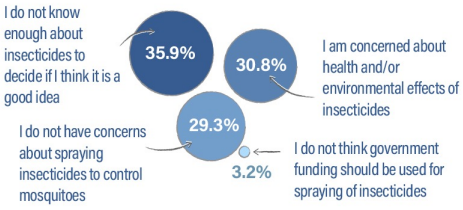
Only 3 in 10 people did not have concerns about spraying insecticides to control mosquitoes

Q: Which of these describes how you feel about insecticides that are sprayed to control mosquitoes?



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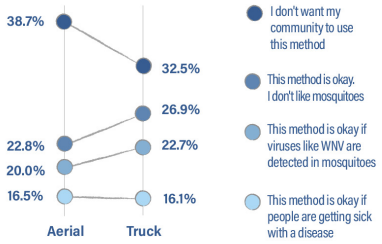
Most respondents were supportive of aerial and truck spraying if certain criteria were met

Q: Which of these describes how you feel about aerial and truck spraying of insecticides to kill mosquitoes?



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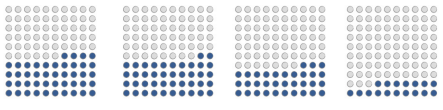
Most respondents are willing to support funding for educational materials and SIT methods

Q: If your city or county funded mosquito control efforts, which would you support funding?



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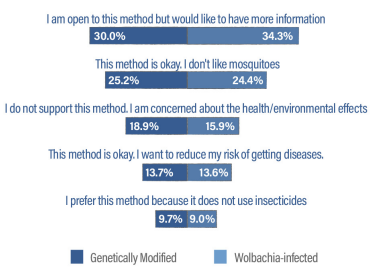
Most respondents were open to using SIT methods but wanted more information

Q: Which of these describes how you feel about using GM or *Wolbachia*-infected mosquitoes?



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Adulticiding Perception Study Key Findings

Cat O'Shaughnessy Coffrin, Captivating Consulting

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Introduction

Overview & Objectives

Learning Objectives:

Specifically, we sought to explore the following topics:

- Perceptions & Impacts: Gauge the current nature of public perceptions and whether or how this is impacting the work of mosquito abatement districts across the country.
- Current Responses: Identify trends and best practices in how this issue is currently being addressed by the districts and other stakeholders.
- Needs & Solutions: Determine major unmet needs, desires, and potential solutions to be explored for addressing the situation.

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Summary Findings

What We Learned

Key Takeaways:

1. Public perceptions about mosquito adulticiding **appear to be mixed**, ranging from extreme (and growing) support to vocal opposition, with many districts experiencing general indifference or a combination of all three.
2. However, respondents widely agree that **misinformation is on the rise**, likely fueled by social media, public distrust, and the tendency for residents to turn to friends and family instead of Districts for reliable information and data.
3. **There is a clear need for more proactive public outreach in all geographies.** In this environment, districts need to drive greater awareness and trust within their communities – especially before new threats or outbreaks occur.

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Summary Findings

What We Learned

4. While many districts are actively engaging their community, **their efforts vary greatly** depending on funding and staff capacity.
5. Potential solutions to consider include:
   - A **nationally-coordinated** communications strategy to help guide consistent messaging
   - **Localized implementation**, with messages and tactics that are adapted for each district
   - Supported by **partnerships** at the national, state, and local levels, including AMCA, CDC, and others

Proactive is key. Waiting until a Zika event to come out of the shadows just causes distrust.

Finding a way to improve our public perception is more important now than ever

AMCA can play a role in developing toolkits to programs, and academic/CDC partners can potentially help bring in outside expertise, so that this burden is not borne solely by the boots on the ground.

We need a unified message and specific response strategies for common misinformation and conspiracy theories.

28

28

Summary Findings

Implications

For today:

- Build on these findings together
- Explore the following
  - **Defining a coordinated communications program** – Goals, outcomes, scope
  - **Communications strategies** – Best practices, key learnings, creative ideas, partners
  - **Consistent messaging** – Key messages, tone, frequency, national vs. local adaptation
  - **Implementation** – Role of AMCA/CDC, tools & platforms, needs, resources

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Summary Findings

Discussion

What did YOU think?

- What resonated? What surprised you?
- Do we need more proactive communications & outreach? Why or why not?
- What do you think of these suggestions that arose?

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Group Session 1: Defining a Coordinated Program

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Group Brainstorm

Defining the parameters for a national program

1. Goal-Setting

- What could we realistically aim to achieve?
- Potential target outcomes?

2. Scoping the Program

- What can we realistically expect from this effort?
- What shold be IN scope?
- OUT of scope?

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BREAK 15 minutes

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Breakout Rotation 1: Strategies

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Breakout Rotation

How this works

THE PROCESS

- You will visit 4 stations for 20 minutes each
- Start at your table, then rotate to the next # up (table 1 will go to 2, then 3, then 4)
- Each station has one question. Here is what you do:

1	2	3
5 minutes	*10 minutes*	*5 minutes*
Look at prior work, silently generate ideas Write down one idea per post-it	As a group, place and organize ideas on flipchart Group similar ideas	Wrap up discussion Move to your next table

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Breakout Rotation

Group discussion

Review where we landed

- Look at each final flipchart – 5 minutes
- What trends emerged?
- Key takeaways?

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LUNCH
Dialogue resumes 11:45

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Breakout Rotation 2:
Messaging & Implementation

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Breakout Rotation

How this works

THE PROCESS

- You will visit 4 stations – but only 15 minutes each
- Start at your table, rotate in OPPOSITE direction (table 1 goes to 4, 3, 2)
- Each station has one question. Here is what you do:

1
5 minutes
Look at prior work, silently generate ideas
Write down one idea per post-it

2
10 minutes
As a group, place and organize ideas on flipchart
Move to next table

39

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Breakout Rotation

Group discussion

Review where we landed

- Look at each final flipchart – 5 minutes
- What trends emerged?
- Key takeaways?

40

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Group Session 2:
Visioning the Future

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Group Brainstorm

Where do we want to go?

First, take 5 minutes to write down your thinking
Then we will share & discuss as a group.

1. In 10 years…

- How do you want our industry to be known by the public?
- What will people think and feel about adulticiding?
- What other hopes do you have?

2. Can we define a shared vision?

- Similarities
- Themes
- Trends
- Considerations

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Final Reflection

Write on your index card

- What was inspiring today?
- What makes you worry?
- What is your advice to us?

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Wrap-Up

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Appendix
Detailed Study Findings

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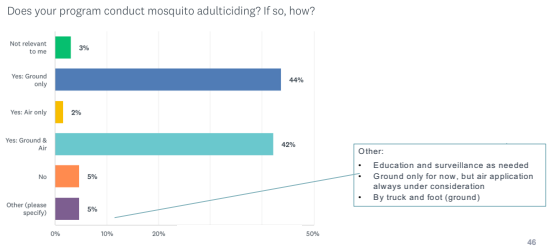
Districts report widespread use of adulticides

Most respondents report the use of some form of adulticiding, with ground application most common.



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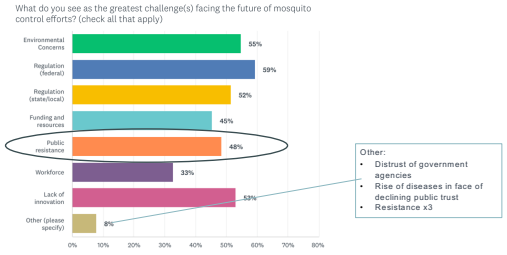
Perception one of many challenges for the future

Nearly half are concerned about public resistance, but regulatory and environmental issues are among the greatest shared concerns.



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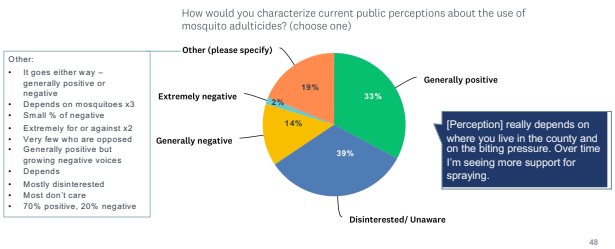
Public perception is mixed, depending on area

Only 16% see negative public sentiment about adulticides, though this could be due in part to generally low awareness about the practice.



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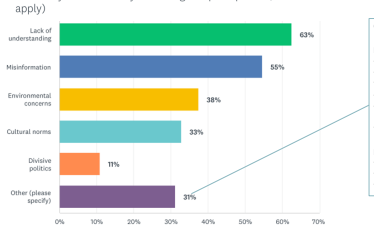
Lack of understanding shapes perceptions

While public sentiment varies, lack of understanding and misinformation among the public generally drive the way the public responds to mosquito control.

What do you believe may be driving this perception? (check all that apply)



Other:

Driving negative views:
- Lack of awareness about MADs
- Social media
- Lack of time and attention to learn
- Unaware until it becomes a nuisance.
- Confusion between agricultural pesticide use and mosquito control
- Belief that natural is safer, chemical is bad

Driving positive views:
- People don't want to get sick
- Biting pressure drives support x2
- We have generally positive support x5

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Disinterest and public trust are also challenges

The combination of growing distrust in public agencies and the general lack of interest in mosquito treatment until it is top of mind can make outreach very challenging.

In the interviews, these were the key drivers of perception issues:
- Lack of trust in government agencies (CDC, EPA)
- Conflation of pesticide use for mosquito control vs. agriculture
- People only care when directly affected, and by then it may be too late
- General lack of awareness about MADs and what they do
- Mixed geography
- Lack of historic exposure to mosquito control
- Confusion about adulticides, larvicides, and DEET

When people no longer enjoy the outdoors, they become very supportive of our efforts.

We see mixed views about spraying due to the urban/suburban nature of our community, infrequent use of adulticiding, and our regular communication and outreach.

There definitely is a vocal minority who hate any use of pesticides, but generally what we see here is that people want us to do more.

The biggest issue is that there is conflation of ag pesticide use and mosquito pesticide use.

Ever since the aedes mosquito arrived it increased a lot of awareness about the importance of what we do.

People want information but only when they need it.

People are either ok with it or they don't care.

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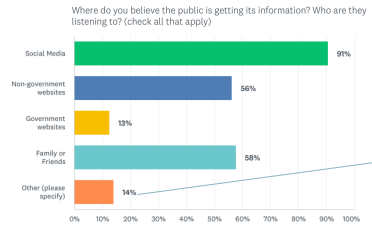
People turn to social networks for information

Most residents turn to social media or friends and family to shape their views on mosquito control, instead of coming directly to the districts for data and facts.

Where do you believe the public is getting its information? Who are they listening to? (check all that apply)



People see things on tik tok, social media, google.. or they might go to home depot and ask for advice.

Other:
- Local TV
- News outlets
- Internet searches
- Life
- Not getting information at all
- Us x2
- Politicians

It's a lot of misinformation from social media - as it's become a more important part of people's lives, it is causing greater circulation of misinformation.

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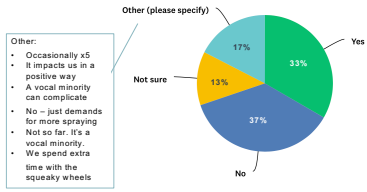
Public perception directly impacts district work

Addressing vocal concerns – even among small groups – requires additional resources for equipment, changes in workflow, communications, and outreach efforts

Does this perception impact your ability – or that of others in your organization – to do your work?



Other:
- Occasionally x5
- It impacts us in a positive way
- A vocal minority can complicate
- No – just demands for more spraying
- Not so far. It's a vocal minority.
- We spend extra time with the squeaky wheels

We had to make some adjustments and get some software to track those no-spray zones so they get alerts - so it solves the problem but that was a big expense.

There is a small group who opposes our work - they chase our trucks, block us, so we just call sheriff ahead of any treatment.

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Most agree more public outreach is needed

In areas with both positive and negative sentiments, district staff are doing more communication and community engagement – online and offline.

Please explain your previous answer & give examples if relevant.

Specific impacts from public perception:
- It's a resource suck that reduces staff capacity and drives down employee morale
- Greater emphasis on managing social media presence and web content
- Greater regulatory scrutiny and roadblocks related to increased vocal concerns
- Requirements to increase our engagement with local conservation orgs
- Greater needs for education and outreach efforts

Positive ways
- Greater support – and demand – with new and growing threats like the Aedes mosquitoes

We spend 10-15 hours trying to change those 3-4 peoples' minds.

More and more people are anti-pesticides and aren't willing to listen to reason as they don't trust any government or scientific authority

Sometimes we just don't want to deal with the people who disagree. We are very comfortable with "this is how it's always been done."

We need to control the narrative but higher leadership does not understand.

We have a very supportive community. They are generally positive about what we do.

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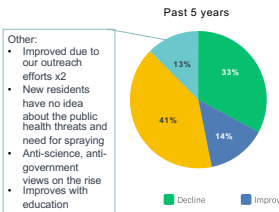
Future expectations about perception are mixed

Respondents expect public responses to adulticiding will continue to remain varied in the future years.

Changes in Public Perception



Other:
- Improved due to our outreach efforts x2
- New residents have no idea about the public health threats and need for spraying
- Anti-science, anti-government views on the rise
- Improves with education

Other:
- Classic messaging no longer a solution
- More research on behavior change is imperative
- Our mosquitoes and vectors will only get worse
- Hope to see improvement with our PR efforts
- Expect steady improvement through education

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Skepticism about public health is a major factor

Trends in public skepticism and online community platforms are expected to be the key forces behind ongoing shifts in public perception.

Can you think of anything specific (techniques/campaigns/media) that might have led to this improvement or decline in perceptions?

Specific factors driving trends in public perceptions include:

- General government distrust and skepticism driven by politics, by Zika, and by COVID
- Anti-pesticide sentiments continue to rise
- Perceived toxicity and ineffectiveness of adulticiding continue with misinformation
- Community platforms like NextDoor fan flames of vocal opposition
- Advocacy groups conflate mosquito control with environmental concerns like pollution & drought

One of the biggest issues for me in general is mistrust of government organizations which extends to CDC and the EPA.

There has been a decline in support of the use of pesticides but this is offset by intolerance of invasive Aedes.

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Most districts are doing some form of outreach

Breadth and nature of outreach varies widely by district and depends heavily on resourcing and staffing realities.

What, if any, measures are you or your organization taking to address misconceptions or perception issues among the public?

- Education & Awareness campaigns about benefits & safety of adulticides
- Community engagement
- Communication strategies that are clear, transparent, and science-based communication strategies
- Partnerships and collaborations – local governments, community leaders, health orgs
- Messaging – tailoring to audience segments
- Feedback mechanisms – to regularly received input about concerns
- Social media and web presence – most if not all districts have a presence, though the ability to maintain effectively depends on resources

As much as we hate dealing with [vocal opposition], it has really pushed us forward in terms of progress.

- Transparency in operations and decision-making processes
- Outreach events – community, fairs, public meetings
- Media relations to secure coverage for risk-related issues and about spray activity
- Training & professional development about importance of integrated approach and effectiveness of adulticides as part of it
- Public education programs focused on public and government officials

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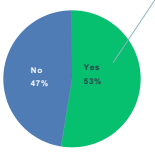
Many look to partners for support and resources

Half of respondents said that outreach by other organizations is helpful for their needs. Specifically, they value education, engagement, PR, and tailored local outreach

Are there any efforts led by other leaders or organizations that you find helpful in addressing these issues?



Organizations listed

- Mosquito & Vector Control Ass'n of CA
- NPIC, EPA, NACCHO
- AMCA x5
- CDC x5
- National & Local MC Ass'ns
- MVCAC, AMCA, UC Extension
- Legal Office of Education
- California districts
- FMCA, AMCA, FASD
- RISE x4
- NJOMCC, NJDPH
- ESA, Farm Bureau
- Specialty Districts Associations
- Specialty Pesticide Users
- Centers of Excellence

Most effective outreach efforts:

- Local ordinances permitting mosquito control without obstacles
- Public relations
- Community engagement – both at medium-sized events and 1:1
- Creating greater awareness of the public health risks – shifting the focus from pesticides to the diseases
- Tailored, localized efforts are most impactful
- Education efforts with focus on classroom outreach, Liaising with HOAs and neighborhood advocates
- Visibility at community events promotes a sense of transparency and openness

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Our messaging must be transparent and clear

Districts find success with messages that focus on building a connection with communities through partnership, practical information, and personal stories.

What public messaging have you found to be most impactful?

Practical Action: This is everyone's responsibility and ***we can all work together*** to make an impact. This makes it more about the outcomes than the chemicals.

Disease Risk and Quality of Life: Highlighting the increased risk of disease transmission and the impact on quality of life.

Education and Information: Educating the public about mosquito control methods, the science behind them, and the reasons for specific actions to help dispel misconceptions and build understanding.

IPM Approach: Emphasizing the integrated pest management approach builds understanding and trust.

Personal Stories: Sharing videos of impacted families humanizes the issue and highlights the real-world consequences of mosquito-borne diseases.

Teaching people about our IPM toolbox and that we aren't simply "throwing chemicals at the issue"

Talking about disease risk to susceptible subpopulations, and reminding people how lucky we are not to have man other mosquito-borne disease because of our control programs.

When we open up about what we're doing, the public seems fine with it.

Teaching people about mosquitoes get a surprised and interested reaction and opens the door to explaining our work.

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Public education is key to building trust

Communicating more frequently and openly about our work can go a long way to building relationships and building trust.

We weren't always as transparent in regards to treatments... but now we are trying to be more transparent. Honestly, localized efforts are the most effective.

Once we explain everything, they are extremely supportive. Explaining that we don't [spray] often but when we do there are very specific reasons why can help.

Dump and scrub is the most important message. We used to say dump and drain, and now it's dump and scrub.

Our 3 key messages: Removing standing water, using insect repellent, and we care about mosquitoes because they can transmit diseases - not necessarily just because they are pesky. It puts people into "what is my risk for that" and "what can we do" mindset.

Folks are not aware of what we use unless we tell them directly. They mistake larvicides for adulticides.

There was a lot of public distrust before, due to the prior leader here. When that changed, and we filled my [outreach] role, it improved our relationship with the community.

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We must act and sound like humans

If we want to establish ourselves as the trusted resource for information, a combination of social media, face-to-face, and partner-oriented outreach is key.

Transparency is crucial: Providing transparent updates about what we're doing and why builds greater trust and understanding.

Language Choice: Referring to *treatments* instead of products and pesticides can help mitigate negative perceptions associated with these terms.

Face-to-Face Communication: Face-to-face conversations are crucial, especially with those who have questions. They build trust and demonstrate an openness to engage.

Collaboration and Partnership: Partnering with local government leaders, conservation groups, and public health organizations can help with public trust and awareness.

Media and Social Media: Utilizing media outlets and social media platforms to disseminate messages can reach a wider audience and increase public awareness.

Empathy and Respect: Treating people with empathy and respect, acknowledging their concerns, and engaging with them as equals.

There is no faster way to break trust with the public than to be paternalistic with them about the information that you share

A transparent approach works for us. Humanizing our organization helps dispel rumors and partnering with would-be adversaries shows that we are truly committed to making an impact.

If we could get more environmentalists and trusted conservation agencies on board with AMCA that would be a huge help.

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We need a variety of formats and platforms

In addition to social media, districts cite visual tools, publications, and local government outreach as impactful strategies at the local level.

- Social media is really important. It is a key piece to our messaging and somebody should dedicate time to reels, posts, etc.
- Our education coordinators they heavily rely on tik tok because they are reaching out to students. We use different platforms to reach as many people as possible
- We need more publications that target arguments against the use of adulticides that can be used to disarm concerns.
- With the introduction of invasive species, we started doing a lot more adulticiding and we did get a lot more outreach. Even local governments and cities had questions.
- But once we started to establish those relationships, met with leaders and governments regularly, people seemed to kind of understand. After those first couple of years we didn't get a lot of major organized pushback at all and now it's pretty routine
- The more we can show them, visually, what our work looks like the better. Tours of our facilities, images of sprayers

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We need partner involvement at all levels

A coordinated communications effort across all organizations, at local and national levels, will be key for supporting our districts.

Who do you think can and should get more involved in addressing public misconceptions?

Who should be involved:

- CDC x7
- USDA, EPA, FWS
- Extension agents
- NPIC
- APHA
- AMCA, MVCAC
- Community leaders, elected officials
- Government regulators
- Social media influencers, celebrities
- State & Local health departments
- Academia & researchers
- Poison control centers
- Media
- Environmental health agencies
- Travel doctors
- Physicians, pediatricians, OBGYN

- I think it takes all of us working together with the same information and goals to protect the public.
- Perhaps AMCA could work to put together a members area of the website to provide resources to help disarm the most common objections to the use of adulticides.
- People won't listen. They don't realize that if they did not have us, things would be a lot less environmentally friendly.

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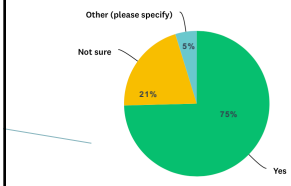
Overwhelming agreement about more outreach

There is clear consensus that we must be doing more to proactively address pubic perception – not just about adulticiding, but about everything we do.

Should we be doing more to address issues of misinformation and public misconceptions about mosquito control and adulticide application?



Key Reasons:

- Mosquito-borne threats are only going to rise, so combatting misperceptions today is key for addressing future challenges
- Building relationships with communities will help drive trust in credible, science-based methods & information
- We need consistent, uniform messaging across our industry & partners to effectively combat misinformation
- Because growing distrust in government is extending to our ability to do our work
- Even if it's a minority view, misinformation erodes public trust over time.
- Outreach will help educate elected officials and gain their support for legislative battles

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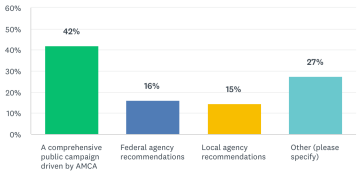
Nationally-coordinated campaign could help

Most districts agree that localization is key for any outreach, but national coordinated campaigns can help.

A comprehensive public campaign from AMCA would be wonderful. And I think having our local, state, and federal agencies make an effort to stop misinformation would be quite helpful.

What else would be most helpful to you in managing misinformation and public misconceptions?



Other:

- All of the above x3
- Has to be local x3
- Major national media story
- Comprehensive library of materials that can be locally adapted
- Stronger online presence
- Unified message with transparency
- More community involvement
- Trusted community leaders and orgs to advocate on our behalf x2
- Recommendations by researchers + public campaign
- Support by federal + local conservation agencies
- No idea

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Final Thoughts

Respondents would like to see a coordinated, proactive, adaptable effort to support greater outreach across the board.

Key themes:

- We need constant proactive messaging to counter misinformation and build public trust.
- Don't overlook the positives – many districts are doing very well in public outreach and receive strong positive support from their communities
- Need more public education about repellents
- AMCA could create more content & online presence
- Deep mistrust of federal government and science poses a challenge to our efforts
- Need more toolkit materials and expertise to shore up local districts
- We have to focus beyond adulticide use and also address objections to larvicides

- Proactive is key. Waiting until a Zika event to come out of the shadows just causes distrust.
- Finding a way to improve our public perception is more important now than ever
- AMCA can play a role in developing toolkits to programs, and academic/CDC partners can potentially help bring in outside expertise, so that this burden is not borne solely by the boots on the ground.
- We need a unified message and specific response strategies for common misinformation and conspiracy theories.

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When: March 4, 2024 **Time:** 7:30 AM to 2:45 PM

Who: 29 Participants: 22 attendees from vector control districts, government, and industry; 2 from Media Cause agency; 5 from the CDC

2 Facilitators: David Brown (AMCA) and Cat O'Shaughnessy Coffrin (Captivating Consulting, LLC)

Where: The Sheraton Dallas Downtown
400 Olive Street
Dallas, TX 75201

Intended Outcomes:

1. Review and discuss initial insights from the AMCA Mosquito Adulticides Perception Study in February 2024
2. Collaboratively explore and define the need and potential for a nationally coordinated communications program
3. Explore and develop ideas for this effort, drawing on best practices and key learnings from the districts.
4. Capture recommendations to include in a final report for the CDC on the current nature, impact, and solutions of public perceptions and misinformation related to the use of mosquito adulticides in public health efforts.

Pre-work & Preparation for Participants:

1. Pre-read of study findings
2. Abbreviated agenda with discussion topics to consider beforehand

Facilitator Role & Directions

- See facilitator notes ***in blue*** throughout agenda
- Mini-facilitator guidance highlighted in yellow
- Your role:
  - *Host your assigned breakout group/table*
  - *Facilitate four breakout rotations (two rounds) with your assigned question/topic*
  - *Capture additional notes and observations to share with CAT & DAVE afterward*

Breakout Groups

Group	Attendees	Affiliation
Facilitators	Roxanne Connelly Maggie Silver David Brown Cat Coffrin	CDC CDC AMCA Consultant
1	**Nicole Foley** Marah Clark Jonathon Little Paula Maedo Clara Campbell Nathan Reade	**CDC** FDACS Collier MC District Contra Costa M&VC District Media Cause Agency County of Inyo AG Dept.
2	**Holley Hooks** Mark Clifton Katherine Ramirez Beth Ranson Sonja Swiger Carl Doud Peter Bonkrude	**CDC** Northshore MA District Consolidated MA District Valent Texas A&M Extension Midland County Mosquito Control Shasta County
3	**Kat Ficarola** Bethany Bolling Gary Goodman Kristen Healy Isik Unlu Desiree Keeney Jennifer McBride	**CDC** Texas Dept. of State Health Svcs Sac-Yolo MCD AMCA/LSU Miami Dade County Ada County Lee County
4	**Ryan Hemme** Casey Crockett Nina Dacko Elmer Gray Bridget Harrison Julieanne Miranda-Bermudez	**CDC** Azelie Ag & Environmental Private Consultant University of Georgia Media Cause Agency Puerto Rico Vector Control Unit

AGENDA	**START**	**FINISH**
Breakfast & Arrivals Room set up: • 5 round tables plus projector • Each table has a table number, one flip chart pre-populated with questions, plus agendas, post-its, stickers for voting, pens & notecards for each person Arrivals: • CAT & DAVE greet attendees, check them in, give them assignment and direct to their table – marked by table numbers • Self-service breakfast is available	**07:00**	**07:30**
Welcome & Introductions • Review meeting objectives and agenda ○ DAVE commences meeting, welcomes everyone ○ CAT reviews meeting objectives, agenda, protocol • Warm-up activity *Mini-facilitators greet table groups and lead introductions:* ○ *Ask each person to share name & where they work* ○ *As a table, answer the warm-up question: "If our industry was a public figure, who would we be and why?"* ○ *Think examples like Oprah, Jane Goodall, Bill Nye… the idea is to spark creative ways of thinking about perceptions* ○ *Pick someone to share answer with the group when CAT asks*	**07:30** 7:30 7:40	**08:00** 7:40 8:00
Group Session 1: Setting the Context • CDC Overview ROXANNE + MAGGIE • Adulticiding Perceptions Study Findings CAT ○ *Reflecting on the pre-read, what resonated?* ○ *What surprised you most?* ○ *Do you agree that, as an industry, we need more proactive communications & outreach? Why or why not?* ○ *What do you think of the idea of a nationally-coordinated communications program designed to support localized implantation?* • Group Brainstorm: Defining a coordinated communications program, discuss realistic goals, outcomes & scope CAT to capture dialogue on flip charts at front of the room. DAVE to help prompt the discussion. First: List our realistic (and unrealistic) goals ○ *How might we define realistic goals and outcomes for such a program?* Second: Create two columns – what's IN or OUT ○ *What would we consider "in" or "out" of scope for this, and why?* ○ *What can we realistically expect from a national effort?*	**08:00** 08:00 08:20 08:45	**09:15** 08:20 08:45 09:15
Break	**09:15**	**09:30**

Breakout 1: Communications & Outreach Strategies	**9:30**	**11:15**
Instructions: CAT to review with the whole group • *MINI-FACILIATORS stand up and remove cover sheet on flip chart to reveal discussion prompt for their table.* • ***Host 4 rotations, 20 minutes each***	9:30	9:35

Directions for participants
• 5' – silently generate ideas to the prompt and write them down on your sticky pad. One idea per sticky.
• 10' – spend 10 minutes with your table and facilitator to place and organize stickies into categories. MINI FACILIIATOR helps lead this process.
• Move to the next table (going down in number)
• Repeat for each station. CAT to keep time/call out rotations.
• By third and fourth rotations, ask participants to vote on top ideas using circle stickies provided.
• *Voting instructions – to be described & managed by MINI FACILITATORS:*
  ○ Use up to 5 stickers to denote which ideas are strongest
  ○ You can vote 5 times for one idea, or spread them around
  ○ Observe & discuss what you see & why
  ○ Next group can add to the stickies
 	
BREAKOUT QUESTIONS – to be written on top of flip charts in advance
1. What outreach strategies have worked best – or been most damaging – in building greater public awareness and trust?
2. Who should we engage as partners in this effort at the national, state, local levels – and how?
3. What audiences are most important to reach, and what do we need to achieve (convince, educate, reinforce) at the national, state, local level?
4. If we were to develop a national campaign, what might a slogan, mascot, or spokesperson be? (Think "got milk?" or Smokey the Bear)
	9:35	10:55

Prompters – CAT & DAVE to provide as process continues • *Prioritize the top three ideas in your breakout topic.* • *How can CDC best help with these ideas? (audiences, federal partners)* • *What's the right role for AMCA? (coordination, development, outreach)* **Group debrief/dialogue** • *CAT and DAVE to lead discussion – identify key trends, observations & takeaways* • *All groups break for lunch & return to their home table*	10:55	11:15
Lunch • During break, CAT to move all working sheets to front of room • CAT to then reveal next questions at each station • Last 15 minutes of lunch, CAT & DAVE lead a quick check in – *how was that for you? What did you observe?*	**11:15** 11:45	**12:00** 12:00

Breakout 2: Messaging and Implementation	**12:00**	**1:45**
Instructions: CAT to review with the whole group • Same process as in breakout 1, except groups rotate in opposite direction. • Shorter rotations this time – 15 minutes only • Groups start at their 'home' table and go to the descending number afterward	12:00	12:05

Directions for participants
• 5' – silently generate ideas to the prompt and write them down on your sticky pad. One idea per sticky.
• 10' – spend 10 minutes with your table and facilitator to place and organize stickies into categories. MINI FACILIIATOR helps lead this process.
• Move to the next table (going down in number)
• Repeat for each station. CAT to keep time/call out rotations.
• By third and fourth rotations, ask participants to vote on top ideas using circle stickies provided.
• *Voting instructions – to be described & managed by MINI FACILITATORS:*
  ○ Use up to 5 stickers to denote which ideas are strongest
  ○ You can vote 5 times for one idea, or spread them around
  ○ Observe & discuss what you see & why
  ○ Next group can add to the stickies
	12:05	1:05

BREAKOUT QUESTIONS – to be written on top of flip charts in advance 1. What are the top 3 messages we all need to use in public outreach? What would be the top ONE? 2. What is your strategy for talking about adulticiding with the public, and how proactive is it? 3. What is the best way to use social media and website content? 4. What is the right tone and format to use in public-facing messages?		
Prompters – CAT & DAVE to provide as process continues • *Prioritize the top three ideas in your breakout topic. What happens first?* • *How can CDC best help you with these efforts? (content format and topics, tools, messages)* • *What's the right role for AMCA? (national messaging, national campaign, behind the scenes, develop & distribute materials, trainings)*		
Group Dialogue • *CAT & DAVE to lead discussion – identify key trends, observations & takeaways* • *All groups return to their home table*	1:05	1:45

Group Session 2: Visioning the Future
In our final session, focus on a shared vision for the future of our industry.
 	
CAT & DAVE to lead the discussion:
• *First, take 5 minutes to quietly reflect and answer these questions yourself:*
• In 10 years…
  ○ How do you want our industry to be known by the public?
  ○ What will people think and feel about adulticiding?
  ○ What other hopes do you have?
• How can we bring this together into a shared vision?
• *Share with the group, CAT taking note of themes and trends*
 	
Next, on the notecard provided, answer the following questions to share with us on your way out the door:
• What was inspiring today? What makes you worry? What is your advice to us?
• *Give people a chance to share if they feel so compelled.*
	1:45
	
	1:45
	
	1:50
	
	2:20
		2:30
		
		1:50
		
		2:20
		
		2:30

Final Wrap-Up & Adjourn • CAT & DAVE summarize final observations, thoughts, thank you's • Give Roxanne, Maggie, AMCA a chance to say a final thanks	**2:30**	**2:45**

DISCUSSION TOPICS – SUMMARY

Whole Group Activity 1- *Defining a Coordinated Communications Program*

- Reflecting on the pre-read, what resonated? What surprised you most?
- Do you agree that, as an industry, we need more proactive communications & outreach? Why or why not?
- What do you think of the idea of a nationally-coordinated communications program designed to support localized implementation?
- How might we define realistic goals and outcomes for such a program?
- What would we consider "in" or "out" of scope for this, and why?

Breakout Session 1- *Communications & Outreach Strategies*
Rotation topics:

5. What outreach strategies have worked best – or been most damaging – in building greater public awareness and trust?
6. Who should we engage as partners in this effort at the national, state, local levels – and how?
7. What audiences are most important to reach, and what do we need to achieve (convince, educate, reinforce) at the national, state, local level?
8. If we were to develop a national campaign, what might a slogan, mascot, or spokesperson be? (Think "got milk?" or Smokey the Bear)

Discussion prompts

- Prioritize the top three ideas in your breakout topic.
- How can CDC best help with these ideas? (audiences, federal partners)
- What's the right role for AMCA? (coordination, development, outreach)

Breakout Session 2- *Messaging & Implementation*
Rotation topics

5. What are the top 3 messages we all need to use in public outreach? What would be the top ONE?
6. What is your strategy for talking about adulticiding with the public, and how proactive is it?
7. What is the best way to use social media and website content?
8. What is the right tone and format to use in public-facing messages?

Discussion prompts

- Prioritize the top three ideas in your breakout topic. What happens first?
- How can CDC best help you with these efforts? (content format and topics, tools, messages)
- What's the right role for AMCA? (national messaging, national campaign, behind the scenes, develop & distribute materials, trainings)

Whole Group Activities 2- *Visioning the Future*

- In 10 years…
    - How do you want our industry to be known by the public?
    - What will people think and feel about adulticiding?
    - What other hopes do you have?
- How can we bring this together into a shared vision?
- What was inspiring today? What makes you worry? What is your advice to us?