

FARMWORKER JUSTICE

HEALTH POLICY BULLETIN

Policies in Action to Promote Emergency Preparedness

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Winter 2021

Policy Update: Protecting Agricultural Workers from Wildfires

By Gabriela Hybel, Legal Fellow, Farmworker Justice

Wildfires burned nearly 14 million acres across the country last year, making the 2020 wildfire season one of the most catastrophic in recorded history. As climate change worsens and temperatures continue to rise, fires will likely pose an even greater threat to our communities, health, and economy. Agricultural workers and their families are particularly vulnerable. Despite the dangers associated with wildfire smoke, many workers did not receive masks or other equipment necessary to protect themselves. There is no federal standard regarding worker protection from wildfires.

In 2019, Senator Merkley (OR) introduced the [Farmworker Smoke Protection Act, S.1815](#). If enacted, the law would require employers to provide certified respiratory equipment—such as N95 or N100 masks—to all farmworkers exposed to wildfire smoke and mandate that workers receive training on how to properly use the protective equipment in a language they understand. The law would also direct the Occupational Safety and Health Administration (OSHA) to issue a permanent standard protecting workers from wildfire smoke.

In the absence of a federal standard, various states have taken action to better protect workers from deadly wildfires. California's Occupational Safety and Health Administration (Cal/OSHA) issued an [emergency regulation](#) imposing specific requirements on employers. It mandates that employers: (1) identify the risk posed to workers by smoke before each shift and periodically throughout shifts; (2) establish procedures to communicate wildfire smoke hazards to workers in a language that they can understand; (3) provide training and instruction to workers about the health effects of inhaling wildfire smoke, workers' rights to seek medical care without fear of retaliation, and the employers' methods for protecting workers; and (4) take action to protect workers from smoke inhalation by providing protective equipment, relocating workers, and changing work schedules. Cal/OSHA created an [FAQ](#) for employers and employees as well as [information on how workers may file complaints](#).

Washington State has begun the process of drafting rules to protect workers. On October 20, 2020, the Washington Department of Labor and Industries issued a [Notice of Intent to draft rules addressing the dangers posed to workers by wildfire smoke](#).

In September 2020, Oregon issued [optional guidance](#), urging employers to take certain steps when conditions threaten the safety of workers. Oregon OSHA said that employers are "responsible for providing a safe and healthy workplace" and must: close outdoor work activity if the air quality becomes dangerous; allow workers with underlying health conditions to stay home; rearrange work schedules so that workers may avoid dangerous conditions; and provide masks where appropriate. Although the guidance does not detail enforcement measures, it does encourage workers to file a [complaint](#) if they are being forced to work through dangerous conditions without proper protections.

Farmworker Justice will continue monitoring federal and state regulations related to wildfires and agricultural worker safety.

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A Health Justice Approach: Integrating Emergency Preparedness with Latino Farmworkers

By Robin Lewy, MA, Director of Programming, Rural Women's Health Project

Doña Darci and her two children had been living in the Florida Panhandle just two weeks when Hurricane Michael decimated the area in 2018. They were living in a trailer with two other families, without a radio or television, listening to the howling winds. She had not received any information about the severity of the storm prior to its approach. Unfamiliar with information lines such as 211, and a monolingual Spanish speaker, she was without access to information.

Fearful after the devastation of the hurricane, Darci moved 300 miles south to Levy County. Now, in 2020, with the pandemic and the threat of Hurricane Eta approaching, Darci had a different experience. Some agencies in her new community provided information in Spanish, allowing her to prepare, to take precautions, and to play a role in community preparation.

Today, Doña Darci serves as a Comunicadora in three counties through our Project SALUD Spanish-language outreach program. Instead of trembling in her trailer as she did during Hurricane Michael, she is now on the phone sharing medically and culturally relevant critical information and linkages to support services with coworkers and community members that builds awareness of the responsibilities of area government agencies to equitably and inclusively involve all in emergency preparedness and response.

Background

The Rural Women's Health Project (RWHP), a health justice non-profit in North Central Florida, has worked for 30 years building communities' understanding of immigrant neighbors, shifting local agency and government policies to serve non-English speakers and developing communication strategies that support inclusivity. This year has been the greatest test yet as the coronavirus pandemic hit rural North Florida and we prepared for our annual struggles against nature, as well as rural poverty and a monolingual approach to information dissemination. Twenty-nine percent of Florida's population speaks a language other than English. Of those, 43% of the Spanish-speakers are limited English proficient (LEP). In the State, COVID-19 prevention messaging was limited to English and not mindful of the digital divide, especially in rural counties. The few materials translated were developed without a cultural, social or economic lens, creating barriers to compliance.

Health Justice Response

For years, efforts to mobilize local governments and departments of health and emergency management agencies to provide Spanish-language information have fallen on deaf ears. While facing the onslaught of the pandemic and being aware of the upcoming hurricane season, the RWHP embarked on four actions to prepare farmworkers with safety information and resources.

#1-Decoding Scientific Messaging

With 30 years of creating community-developed health education materials, we have relied on testimonial media formats and games to offer messaging that is respectful and accessible to farmworkers and their families.

The 2018 *La Lotería Familiar- Contra Los Vientos* ("Against the Wind" Bingo) is a fun game that teaches preventative steps families can take when there is a hurricane or severe storm alert. The game was redistributed statewide by RCMA (Redlands Christian Migrant Association) Daycare Centers and also transformed into a poster for social media blasts.

To inform about the pandemic, we initiated COVID-19 *Consejos* (Advice), an on-going series of one-page, visual tip sheets in Spanish. These are distributed to farmworker families by Community Health Workers and also via an extensive texting service. In 2021, we will include Mixteco messaging in both written and audio formats.



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#2- Demanding Compliance

Working with the Southern Poverty Law Center (SPLC) and 40 statewide Florida organizations, we requested State Departments of Health, Education and Emergency Management to comply with Title VI of the Civil Rights Act. In a September review of the above departments in 13 counties, none of the county Sheriff social media sites and only two emergency management agencies provided information in languages other than English. Local efforts have been more fruitful. Levy County Emergency Management now has parallel posts on their new English Facebook site and on a Spanish page. Alachua County has held bilingual Town Hall Meetings weekly during the first part of the pandemic and now provides bilingual updates on COVID-related ordinances and hurricane warning guidance.

#3- Strengthening Community-Based Leadership

We have broadened our work with our *Promotoras de Salud* and *Comunicadoras* to disseminate COVID *Consejo* Tips, testimonial video messaging on managing COVID in Mam and Mixteco, and immigrant rights information through WhatsApp Circles. The “Circles” are groups of recipients who recognize the *Comunicadora*-sender as a base of referral assistance and guidance.

#4- Providing Direct Relief via Partnerships

Farmworkers are essential workers and have huge limitations to accessing food, Personal Protective Equipment (PPE) and dignity supplies. We created the Farmworker Relief Network (FRN) with migrant education, childcare centers, English to Speakers of Other Languages (ESOL) school program staff, and clinics. The FRN serves as the conduit for the identification of farmworkers in need, and for distribution of relief packages (PPE, bulk grocery or Dignity hygiene bags). This network models critical safety measures during the pandemic such as social distancing and mask use to reduce the transmission of the coronavirus. Most importantly, the FRN is a system of service that respects the challenges of farmworkers in accessing assistance.



Creative Messaging, Networking and Demands for Compliance



At the RWHP, we believe that counties dependent farmworkers must respond to the disproportionate challenges facing the diversity of farmworkers during times of emergency. Without recognition and resolution of the barriers to inclusive community response, all communities will face greater challenges in both preparedness and recovery. All community residents need access to timely, accurate and high-quality information and services, no matter the language they speak, legal status or the work that they do.

Historic misconceptions and prejudices stymie prevention and control measures across race and ethnicity. We hope to continue to serve as a bridge to dismantle distrust, build understanding, and place farmworkers within efforts to mitigate inequitable health and economic outcomes from health crises. Whether it's *La Lotería*, distributed in several languages, *Comunicadoras* who inform and link their Circle of contacts to information and assistance, or break-through efforts by state and local agencies to enact inclusive information dissemination strategies, we are all better for it. While community inclusion of farmworkers and immigrants is a long, hard process, with creative messaging, networking and appeals for compliance with existing legal statutes, the door is beginning to open.

For more information about the RWHP emergency preparedness initiatives, visit our website at www.rwhp.org.

Increasing Disaster Preparedness Education in Migrant and Farmworker Communities with the Support of Community Health Workers

By Herminia Ledesma, MPH, Program Manager, Outreach & Migrant Health, Vista Community Clinic, Vice-Chair of Farmworker CARE Coalition, Co-Chair of San Diego County Promotores Coalition

In the midst of a pandemic, the definition of emergency shifted for our nation. Communities are seeing an increased need for Disaster Preparedness Education that is intentional and responds to protecting our essential workers and systemically vulnerable communities with the support of Community Health Workers.

In the spring of 2020, the stay-at-home orders during the COVID-19 pandemic forced many community-based organizations to adjust not only their operations but also their outreach efforts in the community. The pandemic highlighted and exacerbated the impacts of emergencies in migrant and farmworker communities. During this time, it is critical to provide a rapid response to essential services and programs, while at the same time remaining connected to the community.

There has been a steady increase of disasters and emergency situations afflicting our nation. According to the Federal Emergency Management Agency's (FEMA) website, in 2019 there were 101 declarations of disaster. In 2020, there was a drastic increase, with a total of 307 declared disasters.¹ The disasters in 2020 included fires, hurricanes, and a pandemic, just to name a few. These disasters challenge community stakeholders to think long-term, as unfortunately these disasters have become far too common.



The work of emergency preparedness is an essential service in which stakeholder agencies can engage year-round. During instances of emergencies and disasters, the need for access to key programs such as Head Start, childcare and development programs, community mental health programs, nutritional programs and others increases. Programs will continue to see an increase in the number of individuals requesting assistance, especially as communities continue to manage the economic and health effects of COVID-19.

Farmworker communities face a number of unique challenges regarding emergency preparedness that include, but are not limited to: trans-border identities, language barriers, access to technology, computer literacy, limited broadband connection, and a distrust in the federal government.

With an increase in disasters and a long list of barriers, various communities often rely on the support of Community Health Workers (CHWs), who are trusted leaders in the community. CHWs have many skills, backgrounds and strengths, but the trust they have worked to build in their communities is a key to an effective response, especially in an emergency situation.

An example of this best practice has been formulated by the Farmworker CARE Coalition (FWCC). FWCC, based in San Diego, California, in a joint effort with National Latino Research Center, created an emergency preparedness protocol centered on working with CHWs. *Coming Out Of the Dark: Emergency Preparedness Plan for Farmworker Communities in San Diego County*,²

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¹ Federal Emergency Management Agency. 2020. Declared Disasters. Available at: https://www.fema.gov/disasters/disaster-declarations?field_dv2_state_territory_tribal_value=All&field_year_value=2020&field_dv2_declaration_type_value=All

² Martinez KM, Hoff A, Núñez-Alvarez A. 2009. *Coming Out of the Dark: Emergency Preparedness Plan for Farmworker Communities in San Diego County*. National Latino Research Center California State University San Marcos and Vista Community Clinic. Available at: https://www.csusm.edu/nlrc/documents/report_archives/fw-emergency-plan-5-17-10.pdf

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came about in response to the 2007 wildfires. Due to the effects of the disaster on the farmworker communities and as a witness to the unique nature of how emergency information and services were rolled out, FWCC committed to creating an emergency plan specific to this community. The plan contains an outline of long-term strategies that center on community. The strategies are: Community Involvement and Networking, Advocacy, Assets, Capacity, and Plan Awareness and Buy-In. All of these strategies embed the work of CHWs throughout and ensure that the CHW voices are an integral part to the formation of an emergency plan for this community. These strategies are continuing to be deployed by FWCC and have been adapted for response during the COVID-19 pandemic.

Emergency preparedness work has various phases: education, preparation, response, recovery and mitigation. CHWs have a role in each of these phases. One of the best practices is ensuring there is active community engagement that is constant and continues to sustain trust in the community. In cases of emergency, it is crucial to bring the community together in a safe and responsible way to build connection and solidarity before, during, and after a disaster. CHWs are a powerful addition to any organization that works with and for underserved populations to reduce health, economic, and educational disparities. Research widely supports CHWs' effectiveness at reducing health disparities, increasing access to services, and connecting communities to resources when access becomes even more crucial for communities during times of disaster.



EYE ON FARMWORKER HEALTH

A summary of important recent developments in research on issues affecting the health and safety of agricultural workers.



Disaster preparedness training for Latino migrant and seasonal farm workers in communities where they work

Authors: Rosenbaum R.P.; Long B.

Source: Journal of Occupational Medicine and Toxicology (2018) 13:38

<https://doi.org/10.1186/s12995-018-0219-4>

A pilot project was carried out in Northwest Michigan to increase emergency awareness and response capacity among farmworkers. The authors identify elements such as poverty, lack of transportation, language and cultural barriers, lack of familiarity with the communities they migrate to, geographic isolation, and a lack of culturally and linguistically-appropriate emergency preparedness training among the factors that make Hispanic migrant and seasonal agricultural workers (MSAWs) more vulnerable to the effects of natural disasters.

The pilot project, named the Migrant and Seasonal Farmworker Disaster Preparedness Demonstration (MSFW-DPD), was designed to address the scarcity of emergency preparedness training developed specifically for MSAWs. The MSFW-DPD used the Community Emergency Response Team (CERT) curriculum developed by the Federal Emergency Management Agency (FEMA) to train local community teams in disaster preparedness and response. The Mason-Oceana County Michigan Department of Health and Human Services (MDHHS) helped recruit participants for the workshops both in cities and labor camps. The Oceana Hispanic Center and the Northwest Michigan Health Services clinic in Shelby, Michigan were also involved as partners in the project.

The pilot project consisted of two 3-day disaster preparedness workshops carried out in Oceana County, MI in June and October 2016. A certified trainer and first responders instructed participants on how to respond to disasters and assist others in the community before the arrival of first responders. Skills taught during the workshops included fire safety, light search and rescue, incident command, first aid, automatic emergency defibrillator (AED) use, and money management in an emergency.

Due to the lack of Spanish-speaking certified trainers, organizers relied on teenage participants—who were more likely to know English—and other Spanish language facilitators to help Spanish-speaking farmworkers with the training material while volunteers provided childcare.

A first training was scheduled in June 2016 at the end of the asparagus season, when farmworkers were more likely to have time available. However, attendance was lower than expected: only 14 of the 38 farmworkers recruited attended the workshop; therefore, an additional training was scheduled at the end of the apple harvest season in October. Nine of the eighteen farmworkers recruited for that workshop completed the program. There were a total of 23 farmworker participants in the June and October workshops. Another seven participants were MDHHS and Extension staff.

Twenty-two MSAWs completed the training and received CPR and CERT training certification. The 22 MSAWs included: nine migrant and twelve seasonal farmworkers, eight MSAWs under age 18, eight MSAWs between the ages of 19 and 29, three between ages 30 and 39, and two between ages 40 and 49. Twenty participants were Hispanic: 18 of Mexican origin and two Puerto Ricans.

A post-training survey suggests that participants had better levels of emergency response and disaster preparedness, as well as greater competency in first aid, CPR and AED after completing the program. According to participant's survey responses, 75% strongly agreed with a statement that the training was enjoyable and beneficial, while 25% agreed. Eighty-one percent strongly agreed that their knowledge and skills increased as a result of the training and 19% agreed. Eighty-eight percent strongly agreed that the materials distributed were helpful and 12% agreed.

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Among the challenges encountered during program implementation were achieving proper attendance (partly due to harvest delays caused by weather) and funding limitations that reduced organizers' ability to recruit participants. In addition, the lack of a Spanish-speaking certified trainer caused organizers to partly rely on MSAW teenagers to help non-English speaking farmworkers. Furthermore, the curriculum did not take into account the diversity of the audience in terms of English skills and age, among other factors. Some participants also felt that some topics lacked relevance. In addition, it was difficult to cover all of the material in three days. The need to provide transportation for some participating workers also led to delays during the workshops.

The organizers observed that the workshops benefited both the training team and the community. The project team gained knowledge about the importance of: engaging local stakeholders, considering farmworkers' work and school schedules when planning workshops, translating recruitment and training materials into Spanish, and having a bilingual trainer. This project also demonstrated the role of Extension staff in the local emergency response system by bringing stakeholders together and by being involved in project planning, implementation, monitoring and evaluation. For their part, the 30 participants who completed the training became members of the President's Citizen Corps and were certified in CPR, developing skills they can use to assist with community needs in case of disaster. There also appeared to be interest from some participants in continuing their training. A survey mailed to 24 participants one year after the June workshop showed that eight respondents had taken additional emergency preparedness training.

Discussions of the pilot program were featured in two nationwide webinars and in presentations before government agencies. Audiences included FEMA personnel, government agencies, migrant health centers, and Extension staff. YouTube videos were produced as well. Participant input and feedback from the project team led to some recommendations for improvement. These recommendations include having bilingual sessions, shorter sessions over more days, and more interactive simulations. However, it was recognized that a three-day commitment had likely made it more difficult to recruit participants. It was suggested that having a local agency sponsor the training on a regular basis would be helpful in making the program more sustainable.



Wildfire Smoke Exposure: Awareness and Safety Responses in the Agricultural Workplace

Authors: Riden, H.E., Giacinto R., Wadsworth, G., Rainwater, J., Andrews, T., Pinkerton, K.E.

Source: . Journal of Agromedicine (2020) 1-9.

<https://doi.org/10.1080/1059924X.2020.1725699>.

Agricultural workers are especially vulnerable to the effects of wildfire smoke because they perform strenuous outdoor work. This vulnerability is exacerbated by their low incomes and other socioeconomic factors. In order to assess safety practices and the safety impacts of social dynamics in the workplace, researchers with the Western Center for Agricultural Health and Safety (WCAHS) at the University of California, Davis (UC Davis) and the California Institute of Rural Studies (CIRS) conducted interviews with agricultural workers exposed to extreme weather events, focusing on responses to wildfire smoke.

The researchers conducted interviews and focus groups with agricultural employers and workers in 2018 in agricultural regions of California considered vulnerable to climate change and resulting extreme weather events (as per the Total Agricultural Vulnerability Index or AVI). The AVI assesses agricultural vulnerability to climate change through a series of 22 biophysical and socioeconomic variables. An examination of the AVI identified four areas that are highly vulnerable to extreme weather events: the Sacramento-San Joaquin Delta, the Salinas Valley, the Merced-Fresno corridor, and the Imperial Valley.

Agricultural employers recruited for interviews were located in the Salinas Valley, the San Joaquin Valley, and the Imperial Valley. The employers were interviewed by telephone due to the logistical difficulty of bringing together multiple employers together at one location and concerns that employers might hesitate to share business information in the presence of competitors. Agricultural workers participated in focus groups instead of interviews. Both the interviews and the focus groups involved semi-structured information gathering through open-ended questions.

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Employers were identified through industry sources and producer listings obtained from agricultural commissioners. Direct employers and labor contractors were eligible to be interviewed provided they were older than 18 years of age, able to converse in either English or Spanish, had 15 or more employees, managed agricultural production and/or harvest in one of the three study areas, and were planning to continue in agriculture for at least 5 more years. This last requirement was meant to enable researchers to study climate adaptation planning. A total of 16 employer interviews were conducted, all in English, with six employers in the San Joaquin Valley, four in the Imperial Valley, and six in the Salinas Valley.

Community organizations assisted with the recruitment of agricultural workers to participate in focus groups, and hosted focus group meetings. The nine focus groups consisted of 7 to 10 participants each, with male and female workers taking part. In order to participate, individuals had to be able to attend a meeting in one of the three study areas, be employed in agriculture, be available for up to two hours, be at or over the age of 18, and be able to converse in Spanish. Four focus groups took place in the San Joaquin Valley, two in the Imperial Valley, and three in the Salinas Valley. The focus groups were moderated by a bicultural native Spanish speaker.

Focus group discussions with workers were transcribed in Spanish and qualitatively analyzed to determine themes, sub-themes, tone of responses, patterns, stated behaviors, etc. Inductive coding was used to perform a systematic analysis of the interview responses and the focus group transcripts. The themes and patterns that emerged were verified with the moderators and facilitator.

The topics of the employer interviews and worker focus groups included: 1) perception of risk; 2) impact on work practices; and 3) awareness and solutions. Employers' interview responses indicated they were familiar with the precautions needed to address heat, rain and wind in the workplace. Heat was considered the biggest risk to workers. Most employers did not have clear plans for workers in the event of wildfire smoke, despite saying they had concerns about air quality. Even some employers whose workers had been exposed to wildfire smoke did not have such plans.

Agricultural employers in the San Joaquin Valley did report changing work schedules based on air quality; but these changes were sometimes in response to chronic air quality issues unrelated to wildfires. Some employers expressed a lack of knowledge of what to do in response to wildfire smoke, and at least one was not aware of the availability of air quality monitoring data. Others in the San Joaquin and Salinas Valleys reported moving or stopping operations in response to smoke and/or fire proximity. Employers in the Imperial Valley seemed to have more awareness of air quality issues—mostly related to wind and dust—and knew more about air quality monitoring, even though some did not check the data. One reported pulling crews from the fields in response to wildfire smoke. Employers did not have formal plans in response to wildfire smoke, and did not mention masks in their discussion of their safety practices.

Meanwhile, workers in all nine focus groups also identified heat as their greatest concern. Most workers believed in masks and goggles as protective measures against smoke exposure. Some thought a mask with a filter or respirator was needed, while others thought a double handkerchief would offer protection. Among those who mentioned mask use, some said education and employer support were important to achieve consistent and proper use of masks among workers. Some reported that workers sometimes do not wear masks due to heat and discomfort. Some workers also indicated that employers did not enforce or were indifferent to mask use.

Employers and supervisors' attitudes toward safety enforcement emerged as an important factor in worker compliance with safety measures. Workers thought that incentivizing employers and supervisors to implement safety measures was important to promote health and safety practices. One worker described employers caring more about the crops than about worker health. Another emphasized that workers were replaceable, leading them to endure unsafe conditions when employers did not follow the law.

The majority of workers believed policy changes and a top-down approach were necessary to ensure safety compliance. Some groups stated that Cal/OSHA has helped to promote safety and security compliance. Others, however, believed that a neutral entity was needed.

Participating workers indicated that they would continue working in unsafe conditions due to financial need. Although most believed that worker education through radio, in-person trainings and social media would increase adoption of safety measures among workers, they thought employer support would also be needed. Furthermore, they indicated that penalties for

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noncompliance may be necessary to achieve that support.

The researchers identified an apparent lack of urgency regarding wildfire-related protection on the part of employers, which appeared to be part of their general approach to worker safety. Many workers did not have sufficient knowledge of workers' rights, regulations and adequate protective measures, and few had received training in these areas.

Workers thought employer and supervisor attitudes were important to achieving implementation of protective measures. At the same time, they worried that compliance might be hindered by concerns that adopting safety measures could make them less productive, reducing their income. Since harvest schedules and income effects on both employers and farmworkers can be an obstacle to the adoption of safety measures, proper enforcement and messaging will be necessary to attain better safety compliance.

Finally, the researchers note that employer awareness of wildfire smoke safety may have increased since the interviews were conducted in 2018, particularly since additional regulations have gone into effect. They also suggest that concerns about wildfire smoke among agricultural workers may differ by region. For this reason, they recommend that other areas are included in future research.



"Stay or Go! Challenges for Hispanic Families Preceding Hurricanes: Lessons Learned

Authors: Lewis, M.L.; Rappe, P.T.; Tierney, L.K.; Albury, J.D.

Source: Journal of Family Strengths (2020) 19: Issue 1, Article 3.

<https://digitalcommons.library.tmc.edu/jfs/vol19/iss1/3>.

In this paper, researchers examine the factors affecting hurricane preparedness among Hispanics—especially the unique conditions affecting farmworkers and their families—through a review of the existing literature on past hurricanes and decision-making during these weather events by Hispanic families.

Disaster preparedness among Hispanic families may be affected by a variety of socioeconomic factors, such as a lack of financial resources or transportation. It may also be complicated by health problems or by a lack of knowledge of where to go in case of an evacuation. Fear of losing jobs and distrust of authorities may further impede preparedness. Migrant and seasonal agricultural workers (MSAWs) may also be at a particular disadvantage due to language barriers, social vulnerabilities and structural inequalities, lack of access to information, and distrust of authorities, among other barriers. Geographic isolation and poor housing conditions compound communications hurdles. Lack of representation of community organizations and indigenous communities in disaster planning further impede families' ability to prepare and respond to disasters.

With these factors in mind, the authors examined contemporary news accounts of hurricanes in the southern coast of the U.S. to identify lessons on preparedness and response. The first of the events examined was Hurricane Andrew in 1992, which made landfall near Miami, Florida. Three labor camps housing over 10,000 Hispanic migrant agricultural workers and family members were affected; hundreds of their residents were left homeless. Despite an integrated federal response plan, local perception was that FEMA was slow in responding to the disaster.

After Hurricane Floyd caused severe flooding in North Carolina in 1999, focus groups that included rural health, migrant health, local health departments and a regional university pointed to the absence of media alerts in Spanish and a lack of Spanish-language news sources as an important concern identified by agricultural worker families. Others expressed concern about how the information collected by emergency responders might be used.

Language barriers were a problem again when Hurricane Charley made landfall in Punta Gorda, Florida in 2004, affecting preparedness among non-English speaking immigrants. At this time, Hispanics relied on informal networks for information,

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which may have affected the community's perception of risk. In response to these concerns, improvements were made in information dissemination. This disaster also led to the acknowledgment that community-based organizations could be better leveraged in these events. In addition, policy proposals were made to improve communications, evacuations, and continuity of services.

Although hundreds of thousands of Hispanics lived in the Mississippi, Louisiana and Alabama areas impacted by Hurricane Katrina in 2005, they were mostly absent from media coverage, leading to further marginalization. Hispanics with limited English proficiency were more likely to seek help from fellow Hispanics than other sources. They also lacked assurance from federal authorities that their immigration status would not be affected if they sought help, which may have affected their response to events.

In 2017, Immokalee, Florida, an area heavily populated by agricultural workers, suffered the effects of Hurricane Irma. Poverty in this area is rampant, and many families live in uninsurable mobile homes. Although many residents sheltered in schools before the hurricane, government aid was slow to arrive, despite being dispatched much more quickly to the nearby Florida Keys.

The emergency preparedness and response problems highlighted by these disasters lead the researchers to stress the need to address racial, ethnic, and socioeconomic inequalities to improve disaster preparedness among Hispanic families. In order to accomplish this, Spanish-speaking immigrants must be included in disaster planning to increase capacity and resilience in their communities. The authorities should also conduct needs assessments of vulnerable immigrant groups and populations. Community stakeholders such as Hispanic families, indigenous leaders, employers, and political leaders should be included in these assessments to guide state and federal policy and ensure the inclusion of marginalized subgroups.

New communications strategies are recommended as well, utilizing multiple modes of delivery of emergency preparedness information while ensuring that information is accurate, accessible and understandable. Engaging cultural brokers and community-based organizations, emergency responders and local residents can help overcome cultural barriers rooted in mistrust. Such entities and individuals can use a curriculum to help disseminate knowledge, identify community strengths and needs, and create action plans. Further, evaluations of the effectiveness of disaster response measures would improve planning for future disasters.

The authors suggest engaging foreign-born Spanish-speaking Hispanic workers in the areas of agriculture, food processing, construction and service industries who could use their own networks to create an information-dissemination network before and after hurricanes. This system would have the advantage of cultural competency and trust within the community. Workers in these sectors could also be engaged in the formation of a mobile rapid-response workforce to assist with response and recovery efforts.

Finally, the authors suggest that immigrant Hispanics need accurate and trusted information about immigration enforcement plans during and after severe storms. This information needs to be delivered by trusted members of the community. This effort would require emergency management officials, immigration enforcement agencies, and relevant community leaders to collaborate to ensure the delivery of the information. Above all, coordination at all levels will be crucial to improve disaster preparedness and response so they can be inclusive and culturally sensitive.