Occupational Health Policy and Immigrant Workers in the Agriculture, Forestry, and Fishing Sector

Amy K. Liebman, MPA, MA,[1] Melinda F. Wiggins, MTS,[2] Clermont Fraser, JD,[3] Jeffrey Levin, MD, MSPH,[4] Jill Sidebottom, PhD,[5] and Thomas A. Arcury, PhD[6,7]*

Background *Immigrant workers make up an important portion of the hired workforce in the Agricultural, Forestry and Fishing (AgFF) sector, one of the most hazardous industry sectors in the US. Despite the inherent dangers associated with this sector, worker protection is limited.*

Methods *This article describes the current occupational health and safety policies and regulatory standards in the AgFF sector and underscores the regulatory exceptions and limitations in worker protections. Immigration policies and their effects on worker health and safety are also discussed. Emphasis is placed on policies and practices in the Southeastern US.*

Results *Worker protection in the AgFF sector is limited. Regulatory protections are generally weaker than other industrial sectors and enforcement of existing regulations is woefully inadequate. The vulnerability of the AgFF workforce is magnified by worker immigration status. Agricultural workers in particular are affected by a long history of "exceptionalism" under the law as many regulatory protections specifically exclude this workforce.*

Conclusions *A vulnerable workforce and high-hazard industries require regulatory protections that, at a minimum, are provided to workers in other industries. A systematic policy approach to strengthen occupational safety and health in the AgFF sector must address both immigration policy and worker protection regulations.* Am. J. Ind. Med. 2013. © 2013 Wiley Periodicals, Inc.

KEY WORDS: immigrant workers; migrant workers; farmworkers; agriculture; forestry; fishing; health policy; occupational policy; health disparities; minority health

INTRODUCTION

Work in the Agricultural, Forestry and Fishing (AgFF) sector is among the most hazardous in the US. In 2009, the AgFF sector experienced a work-related fatality rate of 26 deaths per 100,000 workers [Arcury et al., this issue; Quandt et al., this issue]. However, in the AgFF sector, worker protection is limited as occupational health and safety regulations in this sector are weaker than are those in other industry sectors [OSHA 29 C.F.R. § 1928; Arcury et al., 1999; American Public Health Association, 2010, 2011a; Keifer et al., 2010; Levin et al., 2010; Liebman and Augustave, 2010]. Hired workers in the AgFF sector are largely immigrants. Most hired agricultural workers in the US are from Mexico, as are a growing number of forestry

[1]Migrant Clinicians Network - Maryland Office, Quantico, Maryland
[2]Student Action with Farmworkers, Durham, North Carolina
[3]North Carolina Justice Center, Raleigh, North Carolina
[4]The University of Texas Health Science Center at Tyler, Tyler, Texas
[5]Mountain Conifer Integrated Pest Management, North Carolina State University, Mills River, North Carolina
[6]Department of Family and Community Medicine, Wake Forest School of Medicine, Winston-Salem, North Carolina
[7]Center for Worker Health, Wake Forest School of Medicine, Winston-Salem, North Carolina

Contract grant sponsor: National Institute for Occupational Safety and Health; Contract grant number: R13-OH009744.
Disclosure Statement: The authors report no conflicts of interests.

*Correspondence to: Thomas A. Arcury, PhD, Department of Family and Community Medicine, Wake Forest School of Medicine, Medical Center Boulevard, Winston-Salem, NC 27157-1084. E-mail: tarcury@wakehealth.edu

Accepted 28 February 2013
DOI 10.1002/ajim.22190. Published online in Wiley Online Library (wileyonlinelibrary.com).

workers [Carroll et al., 2005; Sarathy and Casanova, 2008]. Being an immigrant compounds the limited protections offered in this sector as workers, often without work authorization, fear deportation and have limited knowledge and access to resources, including health care and worker safety training [Azaroff et al., 2004; Moure-Eraso and Friedman-Jimenez, 2004; Saucedo, 2006; Quandt et al., 2006; APHA, 2009; Arcury and Marn, 2009; Marín et al., 2009].

This article describes the current occupational health and safety policies and regulatory standards in the AgFF sector and underscores the exceptions that magnify the vulnerabilities of the AgFF workforce. Immigration policies and their effects on worker health and safety are also discussed. Lastly, recommendations for strengthening occupational health and safety policy in the AgFF sector are presented. The characteristics of immigrant workers in this sector are described in another paper in this issue [Arcury et al., this issue].

CURRENT OCCUPATIONAL SAFETY AND HEALTH REGULATIONS RELEVANT TO IMMIGRANT WORKERS IN THE AgFF SECTOR

Agriculture

Despite the dangers of farm work and the unique vulnerabilities of agricultural workers, US labor laws and health and safety regulations offer less protection to farm laborers than to workers in other industries. Agricultural exceptionalism, the situation in which agriculture is excluded from labor policy and regulation, has a long history [Schell, 2004; Wiggins, 2009; Liebman and Augustave, 2010]. For example, the Fair Labor Standards Act of 1938 (FLSA) does not require small farm employers to pay minimum wage, exempts overtime for all agricultural employees, and permits child labor in agriculture [Fair Labor Standards Act 1938, 29 U.S.C. § 203, et seq]. The National Labor Relations Act [1935] offers no federal protection for agricultural workers to bargain collectively [National Labor Relations Act, 1935, 29 USC § 151; Schell, 2004]. The Social Security Act and many state workers' compensation laws specifically exclude agricultural workers.

Efforts to remove exceptions for agriculture have been numerous, but generally unsuccessful. Attempts to strengthen the Fair Labor Standards Act for hired farmworker children have largely failed [Miller, 2012; US Department of Labor, 2012]. In the 1970s, the minimum wage was extended to farmworkers employed on large farms. However, small farms (those with 10 or fewer full-time employees) continue to be excluded, unless a state has passed a specific law granting them minimum wage pay. The overtime law is somewhat arbitrary; some farmworkers, such as those that plant or harvest trees and those that work in packing houses that pack products for a grower other than the employer, are covered by overtime. Only in the late 1970s did workers employed on large farms gain the right to unemployment compensation.

In the 1970s, the formation of the Occupational Safety and Health Administration (OSHA) in the US Department of Labor was an important step to improve workplace health and safety regulations. However, farmworker protection is notably absent from OSHA, and the agency has largely declined to put forth specific agriculture standards. The Field Sanitation Standard, promulgated in 1987, which requires drinking water, a hand washing facility and bathrooms in the fields, and a few other standards, is the exception [Occupational Safety and Health Administration Act 29 C.F. R. § 1928]. Federal funding appropriated to OSHA specifically restricts the agency's enforcement work in agriculture, exempting farms employing fewer than 11 employees. OSHA is not restricted from enforcing general standards, such as record keeping and injury reporting on larger farms involving crop and livestock production. However, it has neglected agriculture and has largely failed to enforce regulations to protect workers [American Public Health Association, 2011b; Keifer and Liebman, 2011].

In the mid-1990s, farmworkers gained health and safety protection through a revised Worker Protection Standard (WPS), the primary regulatory standard promulgated by the US Environmental Protection Agency (EPA) under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) [US Environmental Protection Agency, n.d.]. The WPS focuses largely on worker protection from pesticide exposure. It requires training and protective equipment for those that work with pesticides, as well as signs indicating when it is safe for workers to re-enter fields that have been sprayed with pesticides [40 C.F.R. § 170]. EPA has agreements with state agencies to implement and enforce WPS and certain states offer stronger protection. Nonetheless, WPS is notably weaker than similar regulatory standards for occupations other than agriculture, and the WPS is poorly enforced [Arcury et al., 1999; US General Accounting Office, 2000; Keifer et al., 2010]. EPA has no national requirements to conduct medical monitoring of workers exposed to pesticides [American Public Health Association, 2010; Keifer et al., 2010]. This is in contrast to other industries for which OSHA requires most to conduct medical monitoring of workers exposed to harmful substances [Silverstein, 1994].

Under FIFRA, the EPA also determines what safety information is to be included on the pesticide label for each registered product [7 USC §136(bb); Farmworker Justice/ Migrant Clinician's Network, n.d.]. Labels are not required to be offered in a language other than English, are often complicated to understand, and do not include information on

chronic health effects, such as cancer or reproductive impairment, common concerns from pesticide exposure.

A number of special laws have been created with provisions covering farmworkers. The Migrant Health Act of 1962 established the Migrant Health Program, the first national response to the healthcare needs of migrant farmworkers and their families. The Migrant Health Program is supported via the Consolidated Health Care Act of 1996 [Garcia et al., 2012]. Congress also passed the Farm Labor Contractor Registration Act in the early 1960s to regulate farm labor issues controlled by crew leaders. In 1983, the Migrant and Seasonal Agricultural Worker Protection Act (AWPA), which covers basic safety, housing, wages and record keeping provisions of farm labor employment, replaced the Farm Labor Contractor Registration Act. The AWPA also requires that state laws be followed when transporting workers.

Enforcement of the laws and regulatory standards designed to protect agriculture workers is problematic. Of the 38,537 FLSA violations investigated by the US Department of Labor in 2002 and 21,375 in 2008, only 229 and 110, respectively, were in agriculture. The US Department of Labor completed 1,849 AWPA investigations in 2002 and 1,449 in 2008. Throughout this time period, the percentage of investigations that resulted in findings of violations stayed at 60% [Goldstein and Howe, 2010].

Only a few states have adopted more rigorous state laws protecting farmworkers. Most states in the Southeast maintain the federal law as their standard. North Carolina and Florida have a few more stringent laws than other states, specifically with regards to migrant housing; however, analysis has found that violations of the housing regulations in North Carolina are common [Arcury et al., 2012]. No Southeast state has adopted minimum wage laws covering farmworkers. Only North Carolina and Florida require employers to provide workers' compensation insurance to farmworkers. Yet workers' compensation laws in all Southeast states are either optional or less rigorous for farmworkers than other workers. For instance, in North Carolina, farmworkers are only covered by workers' compensation if their employer hires 10 or more full-time workers, instead of the four full-time employee requirement in other industries.

Fishing

Immigrant workers in fishing, like their counterparts in agriculture and forestry, are involved in a wide array of tasks and exposed to a diverse range of dangers in their employment. These workers harvest fish and shellfish from their natural habitats in freshwater, tidal areas and the ocean. They work on commercial fishing vessels that spend weeks at sea, smaller boats that stay closer to shore, or on the land for seafood processors or fish farms.

The hazardous nature of the fishing trades has been recognized for centuries [Conway, 2002; Lincoln and Lucas, 2010]. Despite the recognized dangers associated with commercial fishing and the identification of many contributing factors, development of mandatory safety standards and regulations in the US has been slow in coming [Lawrenson, 2000]. The Commercial Fishing Industry Vessel Safety Act of 1988 (CFIVSA) was the first health and safety legislation targeting fishing. A key element proceeding from the Act was the Voluntary Dockside Exam (VDE) of the US Coast Guard (USCG). This program was designed to educate and provide commercial fishery workers with an opportunity to bring their vessels into compliance and receive a Commercial Fishing Industry VDE Decal, valid for up to 2 years [Medlicott, 2002].

The CFIVSA required the US Coast Guard to issue regulations [46 CFR Part 28, available at http://www.access.gpo.gov/nara/cfr/waisidx_08/46cfr28_08.html] for safety equipment standards and operating procedures on selective fishing vessels and to increase marine casualty reporting requirements [US Coast Guard, 2009]. Table I provides a list of major (though not complete) items affected by these regulations as they apply to all commercial fishing industry vessels governed by the Act. Owners and operators of vessels may be required to comply with state-specific regulations where the vessel is operated or registered. Furthermore, documented vessels that operate beyond the boundary line (line that generally follows the shoreline and crosses entrances such as bays, inlets, etc.) have certain important additional requirements.

After passage of the CFIVSA and corresponding regulations [46 CFR Part 28] in 1991, the US Coast Guard embarked upon an outreach and education campaign. Despite this effort and the development of a subsequent Fishing Vessel Casualty Task Force in 1999, participation in VDEs has remained suboptimal and the rate of occupational fatalities remains the highest of all work sectors [Bureau of

TABLE I. Major Items Affected by Regulatory Requirements / Specifications as They Apply to All Commercial Fishing Industry Vessels (46 CFR Part 28)*

Personal flotation devices (PFDs) and immersion suits
Throwable flotation devices (such as a life ring)
Survival craft, stowage, and related equipment
Marking, operational readiness, maintenance, and inspection of lifesaving equipment
Distress signals (such as flares, smoke signals, flags during the day and electric at night)
Emergency position indicating radio beacon (EPIRB)
Fire extinguishing equipment
Reporting casualties and injuries

*Source: USCG [2009].

Labor Statistics, 2009; Christensen and Kemerer, 2011]. The US Coast Guard began requesting additional regulatory authority in 2005. A number of incidents with multiple fatalities in 2006 and 2007 led to renewed Congressional interest and culminated in the Coast Guard Authorization Act of 2010 or P.L. 111-281 [US Congress, 2010]. Relative to training, it expands safety orientations, emergency instructions, and survival training requirements by making several of these requirements mandatory. How these requirements unfold along with their enforcement and impact on occupational safety and health of commercial fishery workers remains to be seen. While there are relatively few studies addressing occupational health and safety of immigrant workers in fishing, research that examines the nationality and ethnicity among commercial fishery workers in the Gulf of Mexico suggests that cultural and linguistic differences affect health and safety and need to be considered in training efforts [Carruth et al., 2010; Levin et al., 2010].

The FLSA minimum wage and overtime laws do not apply to employees in commercial fishing crews. In addition to those individuals who are actually engaged in the catching of fish and other seafood, workers engaged in other tasks in conjunction to the catching and harvesting of fish at sea are also not covered by minimum wage laws [29 U.S.C. § 213(a)(5)]. Overtime work leading to fatigue may contribute to accidents resulting in loss of property, injury, and even death.

Fish processing and storage aboard vessels may expose commercial fishermen to a range of occupational health risk factors (physical, chemical, biological, etc.) [Quandt et al., this issue]. Once the catch is brought ashore at the dock, another group of workers usually takes over. Crabs, for example, are first cooked and then the meat is separated from the shell and placed in containers before it is sold [Selby et al., 2001]. This processing work is considered seasonal and employers can, therefore, hire through the H-2B visa program [Aizenman, 2007]. In North Carolina, crab and oyster processing is almost exclusively done by H-2B guest workers from Mexico. As discussed below, H-2B employers are not required to provide housing, but if they choose to do so it must comply with applicable OSHA standards as well as any state laws. Wages for H-2B workers are determined by the US Department of Labor and usually are not much higher than minimum wage.

Aquaculture

Aquaculture, or fish farming, is as dangerous as other types of farming [Claussen, 2000–2001; Myers, 2010]. In addition to all the hazards commonly present in agriculture, employees working in aquaculture also face potential risk of drowning. Other risks involve mechanical and electrical hazards, bacterial and parasitic infections, and poor ergonomic practices. Aquaculture in the US largely falls outside the scope of CFIVSA. The Coast Guard's regulations and oversight do not cover those workers that work on the land in fish farms. Likewise, the Field Sanitation Standard of the Occupational Safety and Health Act of 1970 does not apply to fish farms because the workers are not engaged in hand-harvesting. There are aspects of commercial fishing operations influenced by regulations relevant to occupational safety and health that may be pertinent for aquaculture, but aquaculture is largely excluded from these regulations. This is explained, in part, by the fact that actual fishing vessels, related equipment, and risks may be present on inland aquaculture operations, yet the application of commercial fishing vessel regulation is geographically restricted to the coastal regions of the US.

Many of the regulations pertaining to fishing are controlled at the state level. Furthermore, the organization of work in aquaculture may impact occupational safety and health. For instance, selective fisheries may be seasonal and open during narrow and different time frames from state to state which may influence employment considerations and migration of workers. This adds to economic burdens that may force fishery workers to work for extended periods. Inadequately experienced or untrained workers laboring under circumstances that cause fatigue are a recognized risk for injury. Several of these factors are discussed in greater detail in respective sections related to fishing of the accompanying articles [Arcury et al., this issue; Grzywacz et al., this issue].

Although aquaculture is often considered part of the agriculture subsector, it does not fall within the FLSA's definition of agriculture. Therefore, aquaculture workers do not face the same exceptions from laws that traditional farmworkers do, such as exceptions from minimum wage and overtime requirements. Courts that have addressed the question of whether employees on trout and catfish farms are entitled to minimum wage have concluded that they are entitled to minimum wage [Tullous v. Texas Aquaculture Processing Co, LLC, 579 F. Supp. 2d 811 (S.D. Tex. 2008); James D. Hodgson, Secretary of Labor v. Idaho Trout Processors Company, 497 F. 2d 58 (9th Cir. 1974)].

Immigration Status

The immigration status of workers is an important consideration when examining occupational health and safety. It is estimated that over half of all hired farmworkers in the US are not lawfully authorized to work in the US [Carroll et al., 2005]. The documentation status of immigrant workers in forestry and fishing is not known. The economic need to work, coupled with fear of deportation, has fostered a more vulnerable workforce that is less likely to report workplace safety and wage violations and less likely to seek medical attention [Quandt et al., 2006; Saucedo, 2006;

American Public Health Association, 2005, 2009; Arcury and Marn, 2009; Dunn, 2009].

Immigrant workers in the AgFF sector who are authorized to work in the US often obtain guest worker visas through the H-2 visa program. The US has two guest worker visas for temporary unskilled labor: the H-2A visa program is for agricultural work, and the H-2B visa is for non-agricultural work [8 U.S.C. § 1101(a)(15)(H)(ii)(a) and (b)]. Historically, the H-2A program has included more legal protections for workers than the H-2B program. The H-2A job order is considered a work contract and workers are guaranteed pay for three-quarters of the total hours promised in their work contract. H-2A employers are required to provide free housing and free transportation to the job site from the housing. They are also required to reimburse the workers once they have completed half of their work contract for inbound transportation and subsistence costs; at the end of the work contract they are required to pay for the return transportation to their place of origin. H-2A employers must provide workers' compensation benefits to their employees. Finally, H-2A workers are eligible for free legal services.

Although H-2B regulations do not include the same protections as the H-2A regulations, it is required that H-2B workers are offered full-time work and they are entitled to have their return transportation paid by their employers if they are dismissed before the end of the visa certification period. H-2B visas are only allowed for temporary need, including work which is seasonal in nature, based on a one-time occurrence, a peak load labor need, or labor that is required on an intermittent basis. The most common types of H-2B work are forestry, landscaping, seafood processing, and jobs in the hospitality industry. H-2B visas are capped at 66,000 per year, while there is no cap for H-2A visas.

The most significant similarity between the two visa programs in terms of the experience of the visa holder is that foreign workers who receive H-2A or H-2B visas are only authorized to work for the employer who petitioned for the visa and are only permitted to remain in the US during their employment pursuant to the visa certification. In a traditional employment relationship, employees can "vote with their feet" by leaving a job with unfavorable pay and working conditions and seek employment elsewhere. However, workers with H-2 visas are prohibited from obtaining employment that is not specific to their visa. Foreign workers are often hesitant to complain about poor or illegal working conditions because by complaining they risk losing their jobs. If they lose their job, they lose the right to remain in the US as they are not legally authorized to work for anyone else. This problem is exacerbated by the huge amounts of money that many H-2 workers borrow in order to come to the US. Although recent judicial decisions and Department of Labor policy statements have helped to shift the cost of visas and transportation expense onto employers instead of H-2 employees, the fear of losing the job before they are able to pay off their debt keeps many workers silent even in the worst conditions. This is the scenario that led Congressman Charles Rangel and the Southern Poverty Law Center to compare the H-2 visa programs to slavery [Bauer, 2007].

While the H-2A program raises human rights concerns, and better enforcement of program regulations is needed, studies in North Carolina that compare the occupational safety and living conditions of workers with H-2A visas to immigrant workers without visas consistently find working and living conditions are better for farmworkers with H-2A visas. Workers with H-2A visas are more likely to receive pesticide safety training and more likely to be employed by growers who comply with the pesticide safety regulations than workers without visas [Arcury et al., 1999; Whalley et al., 2009; Robinson et al., 2011]. Workers with H-2A visas are also more likely to live in housing with fewer health and safety violations [Vallejos et al., 2011; Arcury et al., 2012]. It is important to note that the Farm Labor Organizing Committee, the union representing many North Carolina farmworkers with H-2A visas, is actively involved in monitoring the H-2A program [Robinson et al., 2011]. Other reports suggest that experiences of H-2A visa workers may differ without FLOC involvement [Newman, 2011].

THE GLOBAL CONTEXT OF OCCUPATIONAL HEALTH POLICY AND IMMIGRANT WORKERS

Several international standards exist that offer a legal and policy framework to guide national policies regarding migrant workers and their basic rights. *The Universal Declaration of Human Rights* of 1948 consists of 30 articles that outline the rights to which all human beings are inherently entitled and compels states to protect consciously the rights of all people, including undocumented migrants and other non-citizens [United Nations, 1948]. Specifically, Article 1 states that all human beings are born free and equal in dignity and rights; Article 2 states that all are entitled to rights without distinction of any kind, including language and national or social origin and other status; Article 25 underscores the right to an adequate standard of living, including medical care; and Article 13 calls for freedom of movement, including one's right to leave one's country [United Nations, 1948].

Health as a human right is reiterated in a number of legally binding international treaties, including the *International Covenant on Economic, Social and Cultural Rights*; *International Convention on the Elimination of all Forms of Racial Discrimination*, *Convention on the Rights of the Child, Convention on the Elimination of All Forms of Discrimination against Women*, *International Convention on the Protection of the Rights of All Migrant Workers and Members of their Families*, and *Convention on the Rights of Persons*

with Disabilities. The International Labor Organization Convention 182 calls for action to abolish the worst forms of child labor, including the work activities that are currently permitted for youth working in agriculture in the US [Miller, 2012].

There are also international standards that specifically cover the occupational health and safety of migrant workers. The *International Convention on the Protection of the Rights of All Migrant Workers and Members of their Families* states that migrants are entitled to no less favorable treatment in terms of safety and health both in and out of the workplace, including both quality of and access to health care [United Nations, 1990]. The *International Convention on the Protection of the Rights of All Migrant Workers and Members of their Families* together with four specific International Labor Organization conventions offer a comprehensive legal framework to define national and international migration policy and apply to all stages of the migration process, including preparation for migration, departure, transit and the period of stay and employment in the countries of destination, as well as return to the country of origin. Adopted 20 years ago, the *International Convention on the Protection of the Rights of All Migrant Workers and Members of their Families* suffers from a relatively low level of ratification, especially in countries of destination [World Health Organization, 2010]. Furthermore, this Convention is more specific to authorized workers [United Nations, 1990]. While the US has signed many of these important documents described above, it has only ratified the *Universal Declaration of Human Rights* and *International Covenant on Economic, Social and Cultural Rights*. Nonetheless, these international standards set a framework for the protection of human rights, including health care and workplace related rights.

DISCUSSION AND POLICY RECOMMENDATIONS

The regulatory protections afforded to immigrant workers in the AgFF sector are uneven and each industry, agriculture, forestry and fishing, has differing standards and policies. Table II outlines selected laws, regulations and policies that impact the occupational health and safety of immigrant workers in the AgFF sector.

The AgFF sector, by and large, has few regulations protecting worker health and safety, and these regulations are not evenly applied. The experiences of immigrant agricultural workers in the application of health and safety regulations are the best documented. Some evidence is available that the experiences of immigrant workers working in forestry are

TABLE II. Laws, Regulations, and Policies Pertaining to Occupational Health and Safety of Immigrant Workers in the AgFF Sector

	Industry		
Federal laws and regulations	**Agriculture**	**Forestry**	**Fishing**
Federal Insecticide, Fungicide and Rodenticide Act of 1947 (FIFRA)	X	X	
Worker Protection Standard (40 CFR Part 170) for Agricultural Pesticides (WPS)	X	X	
Occupational Health and Safety Act of 1970			
Field Sanitation Standard (OSH Act 29 C.F.R. ☆ 192)	X		
General standards	Limited		
Logging standard (OSH Act 29 C.F.R. ☆ 192)		X	
Fair Labor Standards Act of 1938 (FLSA)	Limited	X	Limited
Ball v. Memphis Barbecue Company, Inc., 228 F.3d 360 (2000)			
National Labor Relations Act of 1935		X	X
Hoffman Plastics Compounds, Inc. v. NLRB, 535 US 137 (2002)			
Migrant and Seasonal Agricultural Worker Projection Act of 1983	X		
Migrant Health Act of 1962 and Consolidated Health Act of 1996	X		
Commercial Fishing Industry Vessel Safety Act of 1988 (CFIVSA)			X
Coast Guard 49 C.F.R. 28			X
Coast Guard Authorization Act of 2010 or P.L. 111-281 Immigration Policy			X
Visa programs			
H2-A	X		
H2-B	Limited	X	X
International policy	X	X	X
State regulations			
Workers compensation	Limited	X	X
Housing	Limited	Limited	

similar to those of agricultural workers [McDaniel and Casanova, 2005; Sarathy and Casanova, 2008]. If the experiences of agricultural workers are typical of immigrant workers across the AgFF sector, then a great deal of reform is needed in the design of health and safety policy and the enforcement of regulations based on these policies.

The needed policy reform for immigrant workers in the AgFF sector is multifaceted. Immigrant workers, with or without authorization to work in the US, are a more vulnerable workforce due to their overwhelming struggle for economic survival [Saucedo, 2006; APHA, 2009; Arcury and Marín, 2009]. Fear of deportation and loss of income overshadows the day-to-day lives of immigrant workers. Improving the health and safety of the immigrant workforce must start with comprehensive immigration reform legislation with meaningful opportunities to obtain citizenship. Immigration reform is intimately tied to the occupational health and safety of workers as reform would remove or significantly lessen the precariousness of the agricultural labor relations system. Eliminating the underlying fear of job loss and deportation would likely increase the willingness of workers to report unsafe working conditions and labor violations [Farmworker Justice, n.d.]. Thus, short of comprehensive immigration reform, any new visa program or changes in existing visa programs, such as the H2 visa programs, should ensure that workers and their family members have a meaningful opportunity to become immigrants (as opposed to temporary visa holders tied to one employer) as well as citizens. The *Universal Declaration of Human Rights* and other international conventions that emphasize the protection of human rights, health care as a human right and workplace rights, outline important protections for migrant workers and offer a framework to approach the regulatory milieu in the US. It is important that the US ratify the international conventions it has signed. Beyond signature and ratification, the major challenge is implementation of policies that focus on the protection of human rights. Emphasis on comprehensive immigration reform with a meaningful path to citizen is due to the US currently tying protection of human rights to citizenship [Dunn, 2009]. In the current system, in which migrants have no feasible path to citizenship nor protections based on a framework emphasizing human rights as put forth in many of the international conventions, migrants remain less protected in the work place as well as while residing in the US in order to work.

Short of comprehensive immigration reform or a framework emphasizing human rights, policy change is needed to end the long history of exclusions for agricultural workers under existing legislation and the subsequent regulations. This recommendation is echoed by the American Public Health Association in recent policy statements that call for monitoring pesticide exposures in farmworkers [2010] and an end to farmworker exceptionalism [2011]. The National Institute for Occupational Safety and Health recently organized *Eliminating Health and Safety Disparities at Work*, a national meeting held in September, 2011. Ending exceptionalism for groups of workers was an important conference recommendation, calling for changes in current legislation and regulation that exclude workers from FLSA, NLRA, and OSHA.

The FLSA needs to be equally applied to workers in all industries, including those in the AgFF sector. In 2011, the Department of Labor took an important step to improve the protections afforded to young workers as it proposed the first major overhaul of the Agricultural Child Labor regulations since they were first adopted in 1970. The proposed changes sought to strengthen the Agricultural Hazardous Occupation Orders for youth by making them similar to non-Agricultural Hazardous Occupation Orders. In 2012, however, the Department of Labor withdrew the proposed rulemaking [US Department of Labor, 2012]. The proposed Children's Act for Responsible Employment (CARE), if passed, would further protect children working in agriculture. CARE would close loopholes that permit the children of migrant and seasonal farmworkers to work for wages when they are only 12 and 13 years old. FLSA also needs to be equally applied to all workers in agriculture as it is to workers in other industries. Changes need to address minimum wage and overtime pay regulations in agriculture.

Specifically in regards to the OSH Act, Congress should eliminate the fiscal rider prohibiting OSHA from enforcing regulations in agricultural operations with less than 11 workers. OSHA is permitted to enforce regulations on farms with more than 11 workers and more enforcement is needed. In addition, OSHA must establish standards specific to agriculture to protect workers (e.g., regulations for temperature extremes and exposures that cause heat-related illness, regulations for safer ladders and ladder use and regulations for better eye protection).

The EPA is responsible for protecting workers from exposure to pesticides. The Worker Protection Standard needs to be strengthened to include better enforcement, appropriate worker training facilitated to all workers and employers annually, better right-to-know regulations and improved monitoring of workers' exposure to pesticides and pesticide reporting and surveillance requirements. A 1975 circuit court ruling denied US Department of Labor and OSHA the authority to promulgate rules regulating farmworker exposure to pesticides and held that it is the EPA that has the authority to promulgate such rules [Migrants in Community Action, Inc. v. Brennan, 520 F.2d 1161 (D.C. Cir. 1975)]. However, farmworkers continue to have fewer and weaker protections than workers in other industries. After more than a decade of review and revision, EPA has failed to promulgate a stronger WPS. A stronger role for OSHA in the

protection of farmworkers from pesticide exposure needs to be considered.

Access to health care remains an obstacle for immigrant workers in the AgFF sector [Frank et al., this issue]. Legislation such as the anti-immigrant laws passed in Arizona, Georgia and Alabama further alienate immigrant workers and have a chilling effect on access to services even if the legislation does not specifically prohibit certain access. While some workers have access to primary care services via Community and Migrant Health Centers, access to specialty care is limited. Often workers' compensation is the only way workers can pay for specialty care due to occupationally related injuries and illness. However, most of the southeastern states specifically permit employers to not offer workers' compensation to agricultural workers. These exclusions specific to industry must be eliminated.

CONCLUSION

Immigrant workers make up a significant component of the AgFF workforce in the Southeast. These workers enter an industrial sector that is among the most dangerous in the US. The risks associated with the AgFF are compounded by a workforce that is more vulnerable, as the workers, by and large, are younger, less formally educated, more likely to be foreign-born, less likely to speak English, and less likely to be US citizens or have legal authorization for employment. A vulnerable workforce and a high-hazard industry merit regulatory protections, protections that are at a minimum, provided to workers in other industries. Economic survival and fear of deportation are important considerations in any effort to reform safety and health policy for immigrant workers. These factors also underscore the need for a systematic approach to occupational safety and health that addresses both immigration policy and regulations related to worker safety and health in AgFF.

REFERENCES

Aizenman NC. 2007. Crab processors await decision on guest worker visas. Washington Post, October 13; B01. Available from: http://www.washingtonpost.com/wp-dyn/content/article/2007/10/12/AR2007101202238_pf.html. Accessed June 16, 2011.

American Public Health Association. Public Health Association. Requiring clinical diagnostic tools and biomonitoring of exposures to pesticides. Policy Statement 2010. Available from: http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1400. Accessed February 15, 2011.

American Public Health Association. Public Health Association. Occupational health and safety protections for immigrant workers. Policy Statement 2005-4. Available from: http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1318. Accessed October 3, 2011.

American Public Health Association. Ending agricultural exceptionalism: Strengthening worker protection in agriculture through regulation, enforcement, training, and improved worksite health and safety. Policy Statement 2011. Available from: http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1420. Accessed June 5, 2012.

American Public Health Association. Public Health Association. Border crossing deaths: A public health crisis along the US–Mexico border. Policy Statement 2009. Available from: http://www.apha.org/advocacy/policy/policysearch/default.htm?id=1385. Accessed October 3, 2011.

Arcury TA, Marín AJ. 2009. Latino/Hispanic farmworkers and farm work in the Eastern United States: The context for health, safety, and justice. In: Arcury TA, Quandt SA, editors. Latino farmworkers in the eastern United States Health, safety, and justice. New York: Springer, p 15–36.

Arcury TA, Quandt SA, Austin CK, Preisser J, Cabrera LF. 1999. Implementation of US-EPA's Worker Protection Standard training for agricultural laborers: An evaluation using North Carolina data. Public Health Rep 114:459–468.

Arcury TA, Weir M, Chen H, Summers P, Pelletier LE, Galván L, Bischoff WE, Mirabelli MC, Quandt SA. 2012. Migrant farmworker housing regulation violations in North Carolina. Am J Ind Med 55:191–204.

Arcury TA, Grzywacz JG, Sidebottom J, Wiggins M. 2013. Overview of immigrant worker occupational health and safety for the agriculture, forestry, and fishing (AgFF) sector in the Southeastern United States. Am J Ind Med in this issue.

Azaroff LS, Lax MB, Levenstein C, Wegman DH. 2004. Wounding the messenger: The new economy makes occupational health indicators too good to be true. Int J Health Servs 34:271–303.

Bauer M. 2007. Close to slavery: Guestworker programs in the United States. Montgomery, AL: Southern Poverty Law Center.

Bureau of Labor Statistics. 2009. National census of fatal occupational injuries in 2008. US Department of Labor Release # 09-09079. Table 2. http://www.bls.gov/news.release/cfoi.nr0.htm. Accessed June 16, 2011.

Carroll D, Samardick RM, Bernard S, Gabbard S, Hernandez T. 2005. Findings from the National Agricultural Workers Survey (NAWS) 2001–2002: A demographic and employment profile of United States farm workers. Washington, DC: US Department of Labor. Research Report No. 9.

Carruth AK, Levin JL, Gilmore K, Bui T, Gallardo G, Evert W, Sealey L. 2010. Cultural influences on safety and health education among Vietnamese fisherman. J Agromed 15:375–385.

Christensen E, Kemerer J. 2011. Fishing vessel safety: Where we've been, where we're headed. Coast Guard Proc 67:6–13.

Claussen CB. High accident rates in agriculture. Gemini 2000–2001. Available from: http://www.ntnu.no/gemini/2000-06e/10.htm. Accessed November 22, 2011.

Conway G. 2002. Casting their lot upon the water: Commercial fishing safety. Lancet 360:503–504.

Dunn TJ. 2009. Blockading the border and human rights: The El Paso operation that remade immigration enforcement. Austin, TX: University of Texas Press. 313 p.

Fair, Labor Standards Act 1938, 29U. S.C. § 203, et seq.

Farmworker Justice. n.d. Immigration reform and farmworkers. Available from http://farmworkerjustice.org/advocacy-and-programs/agjobs. Accessed February 16, 2013.

Farmworker Justice/Migrant Clinician's Network. n.d. A guide to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) for migrant-serving clinicians. Available from: http://www.migrantclinician.org/files/FIFRA%20Guide.pdf. Accessed April 26, 2012.

Frank AL, Liebman AK, Ryder B, Weir M, Arcury TA. 2013. Health care access and health care workforce for immigrant workers in the agriculture, forestry and fishing sector in the Southeastern US. Am J Ind Med in this issue.

Garcia D, Hopewell J, Liebman AK, Mountain K. 2012. The migrant clinicians network: Connecting practice to need and patients to care. J Agromed 17:5–14.

Goldstein B, Howe B. 2010. Weeding out abuses: Recommendations for a law-biding farm labor system. Washington, DC: Farmworker Justice, Inc. Available from: http://www.fwjustice.org/files/immigration-labor/weeding-out-abuses.pdf. Accessed April 26, 2012.

Grzywacz JG, Lipscomb HJ, Casanova V, Neis B, Fraser C, Monaghan P, Ballejos QM. Organization of work in agricultural, forestry and fishing sector in the US southeast: Implications for immigrant workers' occupational safety and health. Am J Ind Med in this issue.

Hodgson JD. Secretary of Labor v. Idaho Trout Processors Company, 497 F. 2d 58 (9th Cir. 1974).

Keifer M, Liebman A. 2011. They didn't mean to ignore us. How OSHA has inappropriately ignored the needs of agricultural work places. Poster presentation at Eliminating Health and Safety Disparities at Work, September 14, 2011, Chicago, IL.

Keifer M, Gasperini F, Robson M. 2010. Pesticides and other chemicals: Minimizing worker exposures. J Agromed 15:264–274.

Lawrenson K. Commercial fishing safety: History of commercial fishing legislation. Proceedings of the Second National Fishing Industry Safety and Health Workshop. Washington—Department of Health and Human Services; 2000. pp. 52–56. Available from: DHHS, Washington; PHS; 2000-104.

Levin JL, Gilmore K, Shepherd S, Wickman A, Carruth A, Nalbone JT, Gallardo G, Nonnenmann MW. 2010. Factors influencing safety among a group of commercial fisherman along the Texas Gulf Coast. J Agromed 15:363–374.

Liebman AK, Augustave W. 2010. Agricultural health and safety: Incorporating the worker perspective. J Agromed 15:192–199.

Lincoln J, Lucas D. 2010. Fatal occupational injuries in the U.S. commercial fishing industry: Risk factors and recommendations, East Coast Region. DHHS (NIOSH) Publication Number: 2011-105. Anchorage, AK: NIOSH Commercial Fishing Safety Research. Program.

Marín AJ, Grzywacz JG, Arcury TA, Carrillo L, Coates ML, Quandt SA. 2009. Evidence of organizational injustice in poultry processing plants: Possible effects on occupational health and safety among Latino workers in North Carolina. Am J Ind Med 52:37–48.

McDaniel J, Casanova V. 2005. Forest management and the H2B Guest Worker Program in the Southeastern US: An assessment of contractors and their crews. J Forestry 103:114–119.

Medlicott C. 2002. Using dockside enforcement to compel compliance and improve safety. Proceedings of the International Fishing Industry Safety and Health Conference. DHHS (NIOSH) Publication No. 2003-102; p 309–319.

Migrants in Community Action, Inc. v. Brennan, 520 F.2d 1161 (D. C. Cir. 1975).

Miller M. 2012. Hi storical background of the child labor regulations: Strengths and limitations of agricultural hazardous occupations orders. J Agromed 17:163–185.

Moure-Eraso R, Friedman-Jimenez G. 2004. Occupational health among Latino workers: A needs assessment and recommended interventions. New Solut 14:319–347.

Myers ML. 2010. Review of occupational hazards associated with aquaculture. J Agromed 15:412–426.

National Labor Relations Act of 1935, 29 USC § 151, et seq.

Newman E. 2011. No way to treat a guest: Why the H-2A Agricultural Visa Program fails U.S. and foreign workers. Washington, DC: Farmworker Justice. Available from: http://farmworkerjustice.org/images/stories/eBook/pages/fwj.pdf. Accessed April 26, 2012.

Occupational Safety and Health Administration. 29C.F.R. § 1928. Available from: http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10954. Accessed February 15, 2011.

Quandt SA, Grzywacz JG, Marín AJ, Carrillo L, Coates ML, Burke B, Arcury TA. 2006. Illnesses and injuries reported by Latino poultry workers in western North Carolina. Am J Ind Med 49:343–351.

Quandt SA, Kucera KL, Haynes C, Klein BG, Langley R, Agnew M, Levin JL, Howard T, Nussbaum MA. 2013. Occupational health outcomes for workers in the agriculture, forestry and fishing sector: Implications for immigrant workers in the Southeastern US. Am J Ind Med in this issue.

Robinson E, Nguyen HA, Isom S, Quandt SA, Grzywacz JG, Chen H, Arcury T. 2011. Wages, wage violations and pesticide safety experience by migrant farmworkers in North Carolina. New Solut 21:251–268.

Sarathy B, Casanova V. 2008. Guest workers or unauthorized immigrants? The case of forest workers in the United States. Policy Sci 41:95–114.

Saucedo LM. 2006. The employer preference for the subservient worker and the making of the brown collar workplace. Ohio State Law J 67:961–1022.

Schell G. 2004. Farmworker exceptionalism under the law: How the legal system contributes to farmworker poverty and powerlessness. In: Thompson CD, Jr., Wiggins MF, editors. The human cost of food: Farmworkers' lives, labor, and advocacy. Austin: University of Texas Press. p 139–166.

Selby E, Dixon D, Hapke HM. 2001. A women's place in the crab processing industry of eastern North Carolina. Gend Place Cult 8:229–253.

Silverstein M. 1994. Analysis of medical screening and surveillance in 21 Occupational Safety and Health Administration standards: Support for a generic medical surveillance standard. Am J Ind Med 26:283–295.

Tullous v. Texas Aquaculture Processing Co, LLC, 579 F. Supp. 2d 811 (S.D. Tex. 2008).

United Nations. 1948. Universal declaration of human rights. Available from: http://www.un.org/Overview/rights.html. Accessed November 19, 2010.

United Nations. 1990. International convention on the protection of the rights of migrant workers and members of their families. Available from: http://www2.ohchr.org/English/law/cmw.htm. Accessed November 19, 2010.

US Congress. (111th Congress) 2010. Coast Guard Authorization Act of 2010 (P.L. 111-281). Title VI Marine Safety, Section 604 Fishing vessel safety.

US Department of Labor. 2012. Labor Department statement on withdrawal of proposed rule dealing with children who work in agricultural vocations. Available from http://www.dol.gov/whd/media/press/whdpressVB3.asp?pressdoc=national/20120426.xml. Accessed May 18, 2012.

US Environmental Protection Agency. Environmental Protection Agency. Worker protection standard: Final rule. 40C.F.R. § 170. Available from http://www.epa.gov/pesticides/health/worker.htm. Accessed April 2, 2010.

US General Accounting Office. 2000. Pesticides: Improvements needed to ensure the safety of farmworkers and their children. Washington, DC: US GAO. Available from: http://www.gao.gov/archive/2000/rc00040.pdf. Accessed March 31, 2010.

US Coast Guard (USCG). 2009. Federal Requirements for Commercial Fishing Industry Vessels. USCG Pamphlet, 2009.

Vallejos QM, Quandt SA, Grzywacz JG, Isom S, Chen H, Galván L, Whalley L, Chatterjee AB, Arcury TA. 2011. Migrant farmworkers' housing conditions across an agricultural season in North Carolina. Am J Ind Med 54:533–544.

Whalley LE, Grzywacz JG, Quandt SA, Vallejos QM, Walkup M, Chen H, Galván L, Arcury TA. 2009. Migrant farmworker field and camp safety and sanitation in eastern North Carolina. J Agromed 14:421–436.

World Health Organization. 2010. Health of migrants: The way forward—Report of a global consultation. Madrid, Spain, March 3–5, 2010.

Wiggins M. 2009. Farm labor and the struggle for justice in the eastern United States fields. In: Arcury TA, Quandt SA, editors. Latino farmworkers in the eastern United States health, safety, and justice. New York: Springer. p 201–220.