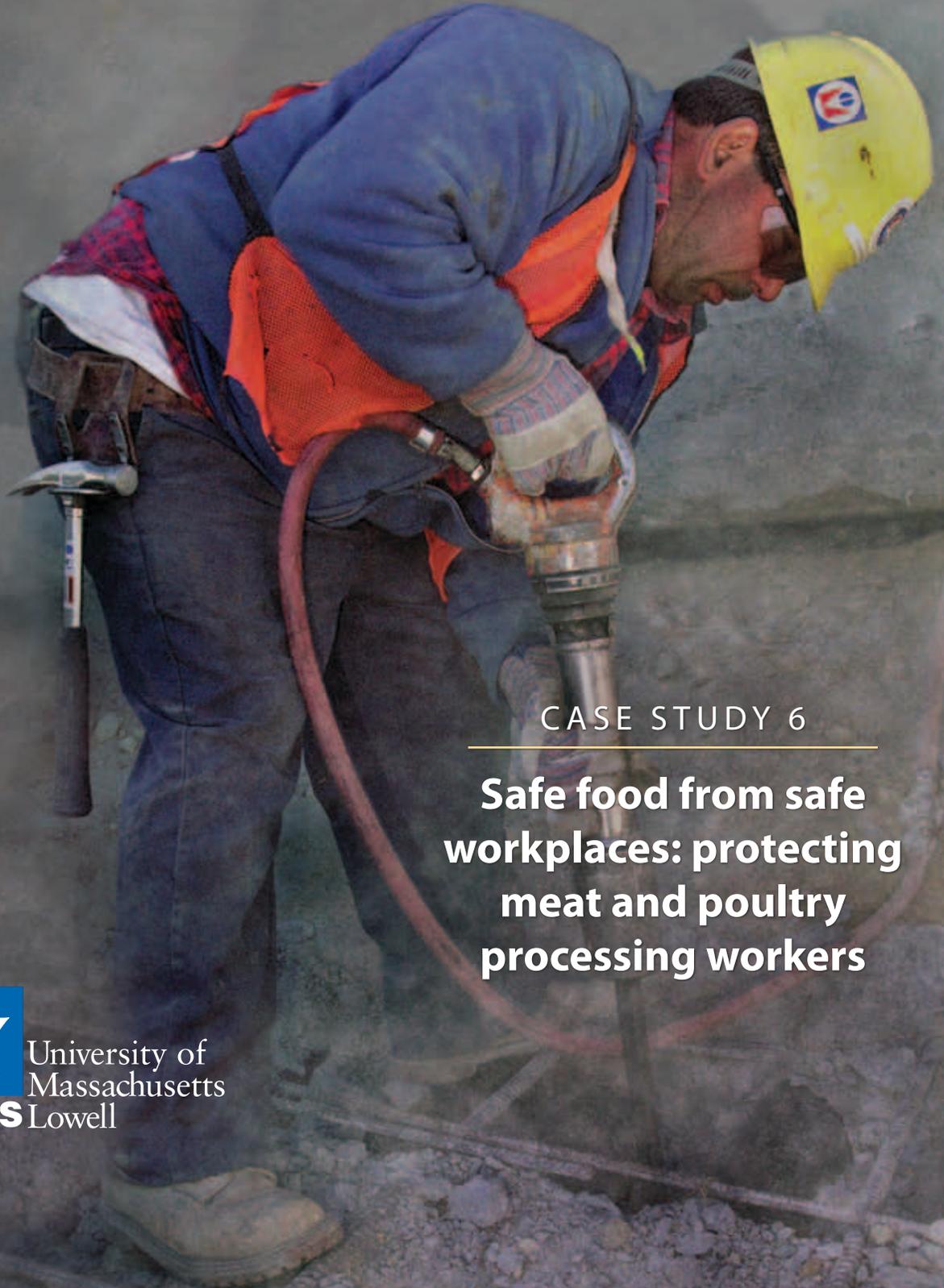


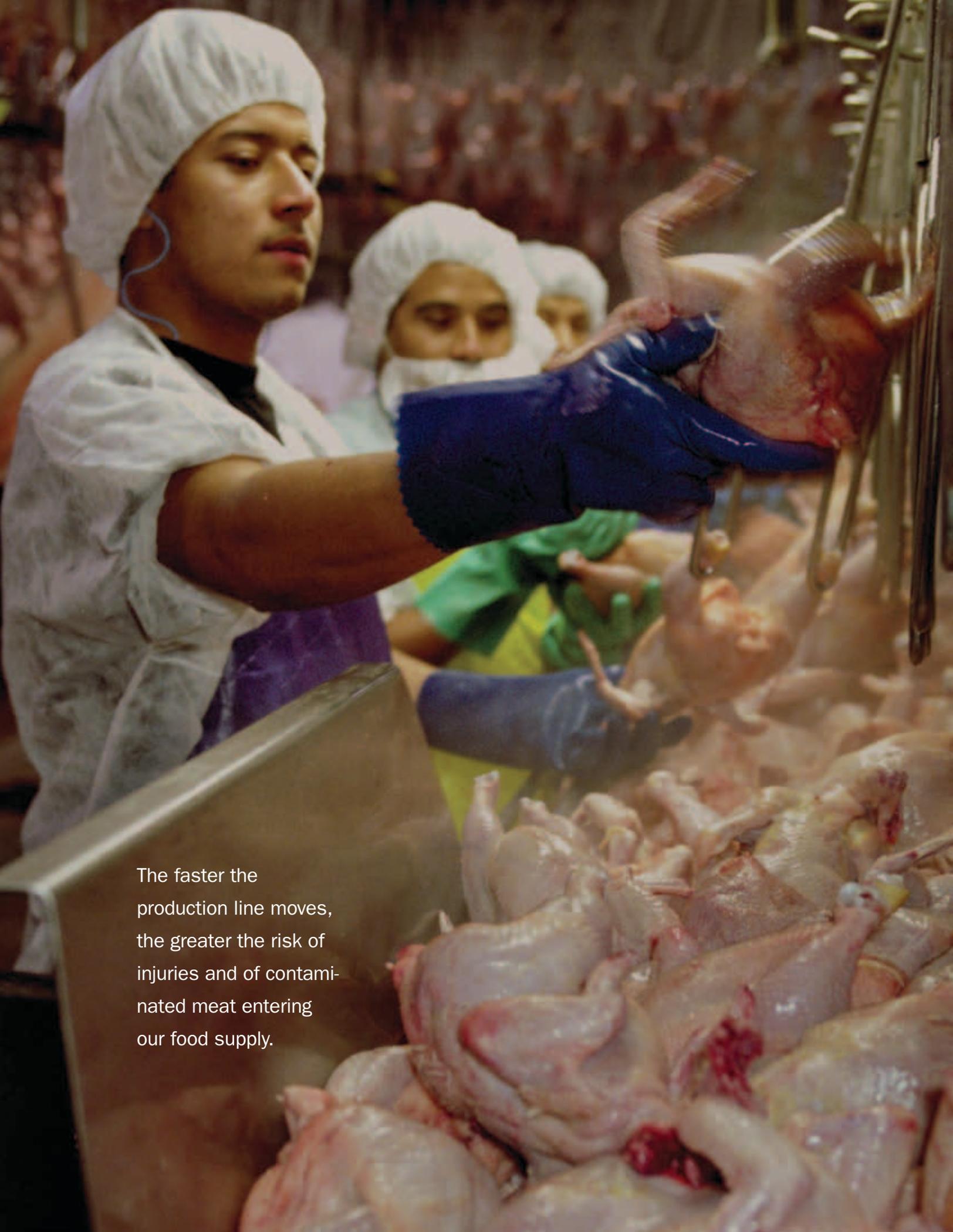
# Lessons Learned

Solutions for Workplace Safety and Health



CASE STUDY 6

**Safe food from safe workplaces: protecting meat and poultry processing workers**



The faster the production line moves, the greater the risk of injuries and of contaminated meat entering our food supply.

## CASE STUDY 6

# Safe Food from Safe Workplaces: Protecting Meat and Poultry Workers

Molly M. Jacobs, David Kriebel, Joel Tickner

**“The line is so fast there is no time to sharpen the knife. The knife gets dull and you have to cut harder. That’s when it really starts to hurt, and that’s when you cut yourself. I cut my hand at the end of my shift, around 10:30 at night. . . . I went to the clinic the next day at 11:00 am. They gave me stitches and told me to come back at 2:30 before the start of my shift to check on the stitches. They told me to go back to work at 3:00. I never stopped working.”**

—A pork processing plant worker at Tar Heel Plant in Bladen, NC, 2003<sup>1</sup>

**“We come in different sizes, but the hooks and the cutting table are the same for everybody. The short ones have to reach more, and they hurt their backs and shoulders. The tall ones have to stoop down more, so they hurt their backs and shoulders. Everybody walks out of the plant hurting at the end of the shift.”**

—A poultry processing plant worker in Rogers, Arkansas, 2003<sup>1</sup>

**“The difference I have found among working in multiple plants is the way we are treated by the supervisors. They [the supervisors] do not train you to do the work, but they still expect you to work. When supervisors talk to you, they scream at you and insult you, using obscenities. There is no respect for the workers.”**

—A meatpacking worker in Nebraska, 2009<sup>2</sup>

**S**LAUGHTERING AND PROCESSING beef, lamb, pork, and poultry for our food supply are inherently dangerous jobs.<sup>3</sup> Turning a 1,250-pound steer or a five-pound chicken into cuts sold in the marketplace is physically demanding work undertaken in a difficult and hazardous work environment. Workers use sharp hooks and knives while standing on floors made slippery from blood, fat, fecal matter, and other bodily fluids. Unpredictable and violent reactions from animals before slaughter pose constant physical threats to workers. Heavy suspended carcasses of beef traveling along a fast-

moving automated line can slam a worker to the floor. Down the line, processing workers stand for long periods of time working closely together while making thousands of repetitive cuts each shift. The noise is deafening and temperatures in the plants range from hot and humid on the killing floors to near freezing in the processing rooms. Pathogens can infect workers, and chemicals from decomposing animal waste, disinfectants, or gases such as ammonia used for refrigeration can prove deadly.

Over a century ago, Upton Sinclair’s *The Jungle* used narrative rather than statistics to describe

injuries among meatpacking workers in the Chicago stockyards, “Of the butchers and floormen, the beef-boners and trimmers, and all those who used knives, you could scarcely find the person who had use of his thumb; time and time again the base of it had been slashed, till it was a mere lump of flesh.”<sup>4</sup> Decades later, when the Occupational Safety and Health Act (OSHAct) became law in 1970, the meat and meat products industry was designated by the new Occupational Safety and Health Administration (OSHA) for priority attention as part of the agency’s efforts to target those industries having the highest rates of occupational injuries.<sup>5</sup> The creation of OSHA in 1970, earlier trade union organizing in the 1930s, and creation of the National Labor Relations Act in 1935 brought improved conditions for meatpacking workers for many years.<sup>1</sup> These gains were lost, however, beginning in the 1980s with a variety of changes in the industry, and by 1991, nearly one out of every two workers was either injured or made ill by the work.<sup>6</sup>

Today, reported illness and injury rates in meatpacking workers are more than double that of U.S. manufacturing as a whole while rates among poultry processing workers are 30 percent higher.<sup>7,a</sup> However, known flaws in our occupational illness

and injury surveillance methods make it difficult to know the extent of current health concerns among these workers.<sup>3</sup>

Despite the inherent dangers of the work, injuries and illness among workers engaged in animal slaughtering and meat processing tasks can be avoided. Comprehensive employee safety education and training, safeguards on machines and equipment, personal protective equipment, reducing line and work speed, employee involvement in decisions that affect workplace health and safety, as well as prompt and appropriate medical management to prevent smaller injuries from becoming more serious or chronic conditions, are just a few of the practices that, if implemented, can keep workers healthy on the job.

### **A brief review of history: Have we come full circle and back to Sinclair’s *The Jungle*?**

#### **Failing to connect the dots: safe food comes from safe workplaces**

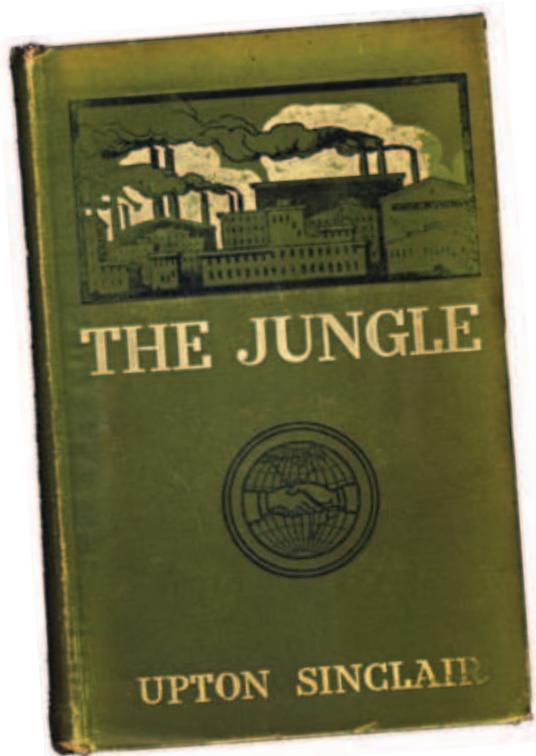
Upton Sinclair’s 1906 novel *The Jungle* exposed the dehumanizing labor conditions and unsanitary environment of the meatpacking industry.<sup>8</sup> In horrific detail from the Chicago stockyards, Sinclair’s writings made clear the connections between unsafe working conditions and an unsafe food supply. The resulting public outrage and outcry to transform the industry resulted in inspections that confirmed Sinclair’s assertions: some packing establishments were continuously unsanitary; meat processing methods themselves were hazardous and unclean, producing meat products simply unfit for human consumption; workers had high rates of tuberculosis; and conditions in the stockyard and in the plants were a significant public health threat to the largely immigrant population that worked there and lived nearby.<sup>9</sup>

Within months, President Teddy Roosevelt and Congress intervened with the passage of two consumer protection laws in 1906: the Pure Food and Drug Act and the Meat Inspection Act. Together the laws sought to safeguard the meat supply for human consumption by increasing the US

## ABOUT THIS CASE STUDY

**H**azards in the meat and poultry slaughter and processing industry are well known and predictable, and solutions to preventing these harms are feasible. Why then is this industry still beset by sickness and injuries? Over the last decade historians, investigative journalists, government oversight committees, occupational health scientists, and human rights and labor organizations, among others, have examined this very problem. This case study provides an analysis and synthesis of this body of work and reveals that solutions to protect the health and safety of meat and poultry production workers cannot be decoupled from the complex intersection of power relations on the plant floor, regulatory agencies with inadequate resources and power, and the perverse economics of our industrial meat production system, in which narrow profit margins drive business decisions that impact workers and consumers alike.

<sup>a</sup> Based on 2009 Bureau of Labor Statistics non-fatal injury and illness incidence data using the North American Industry Classification System (NAICS) codes: 31-33 (manufacturing), 311611 (animal (except poultry) slaughtering), and 311615 (poultry processing).



**“Of the butchers and floormen, the beef-boners and trimmers, and all those who used knives, you could scarcely find the person who had use of his thumb; time and time again the base of it had been slashed, till it was a mere lump of flesh.”** —Upton Sinclair, *The Jungle*

Department of Agriculture’s (USDA) oversight and also prohibiting the sale of adulterated or fraudulently labeled food (and drugs)—an act considered punishable by fines and jail time.<sup>10</sup>

Despite Sinclair’s attempts to connect the health and safety of production workers with the integrity of the food landing on the public’s dinner table, no parallel reforms were enacted to improve workplace conditions. Years later, Sinclair expressed disappointment about the result: “I aimed at the public’s heart, and by accident, I hit it in the stomach. . . . My main concern had been for the fate of the workers, and I realized with bitterness that I had been made into a ‘celebrity’, not because the public cared anything about the sufferings of these workers, but simply because the public did not want to eat turbercular beef.”<sup>11</sup>

#### **Shifting power on the plant floor: the labor movement improves health and safety**

Improvements for workers did arrive decades later due to the growing voice and power of the organized labor movement. Beginning in the 1930s,

wages, working hours, and conditions for meat slaughter and processing workers started to improve as a result of the unionization of their workplaces.<sup>12</sup> While these jobs were still dangerous and difficult, master bargaining unit contracts helped to balance the power structure to ensure that workers’ health and safety were better protected. Unionization helped to bring safety procedures and programs to curtail some workplace dangers: union stewards enforced the placement of safety devices on cutting equipment; the presence of shop stewards and a grievance system helped to slow production speed to decrease accidents; and union sick leave provisions allowed those injured in the course of work to take time off to prevent small injuries from turning more serious.<sup>12</sup>

#### **Technological and corporate restructuring: new hazards and all too familiar injustices**

As technological advances and changes in corporate structure and practices reshaped the nature of the meat slaughter and processing industry, conditions for workers worsened.

Between the 1950s and 1970s, power tools and automated lines helped to mechanize and speed up some of the slaughtering and meat-cutting tasks. As a consequence, more workers were used further down the line in the processing departments, where job duties became simplified.

While improving productivity and reducing the hazards in some tasks, new machine pacing and a production line approach created more repetitive work tasks than had been typical of the industry in

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***“I aimed at the public’s heart, and by accident, I hit it in the stomach.”***

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prior years.<sup>12</sup> Workers still used sharp knives, but rather than doing tasks that required making a number of different cuts at different angles, allowing the body to shift positions, processing workers were now making the same cut over and over again.

Together with technological restructuring of the industry, changes in corporate structure and practices transformed the industry into the one we see today. Over the past 40 years, meat slaughterers

## Vulnerable immigrant workers often suffer in silence

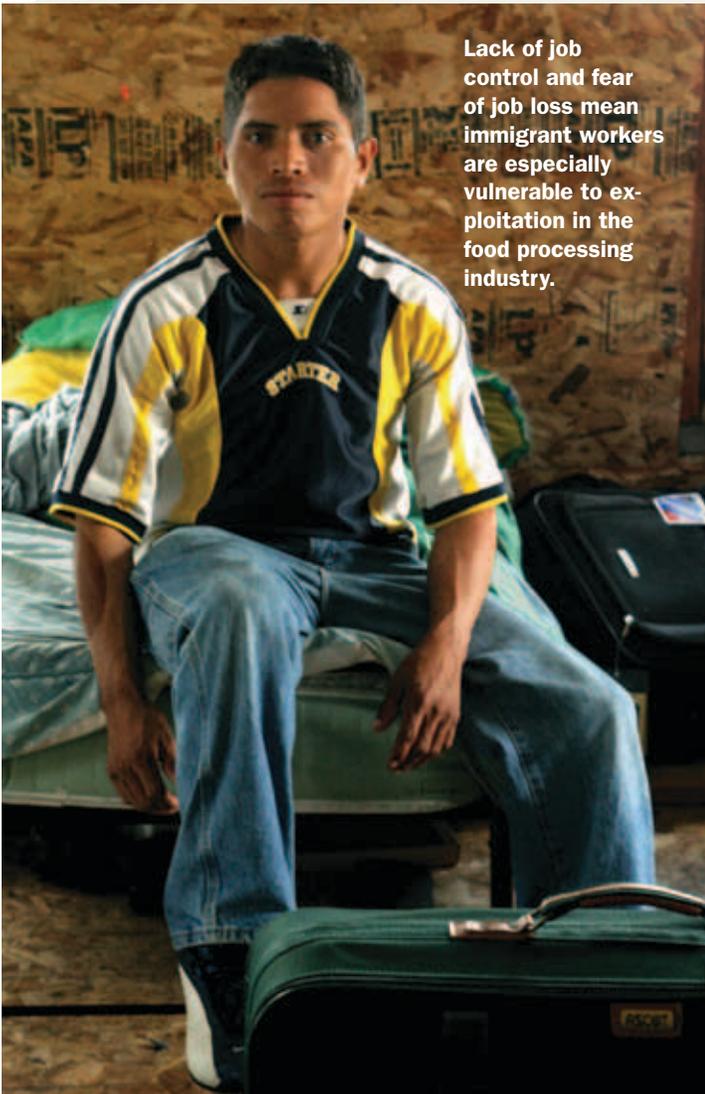
While their countries of origin have changed over the decades, immigrant workers still dominate the workforce in many meat and poultry plants, as they did in the time of *The Jungle*.<sup>3</sup> These workers hold a variety of immigration statuses, and some are undocumented and without current permission to work in the United States. Despite the fact that all immigrant workers—independent of immigration status—are protected by national workplace rights standards, many are afraid to voice concern about unsafe working conditions or prefer to avoid navigating what is often seen as a complex and costly array of procedures to vindicate their rights when they are harmed.<sup>1</sup>

The acute risk of immediate deportation acts as a very strong disincentive for immigrant workers to raise concerns about workplace hazards or personal injury. As one poultry worker told Human Rights Watch in 2003, “They have us under threat all the time. They know most of us are undocumented—probably two-thirds. All they care about is getting bodies into the plant. My supervisor said they say they’ll call the INS [Immigration and Naturalization Service] if we make trouble.”<sup>1</sup>

Similar fear is felt among immigrant workers and US-born workers who are working legally. Most workers depend on having a job to support their families, and some may also have undocumented relatives or friends whom they want to protect.<sup>1</sup> As reported by Nebraska Appleseed in 2009, a survey of 455 workers on Nebraska’s meat-packing disassembly lines revealed that workers’ basic fear of losing their jobs—apart from immigration concerns—was the main reason they refrained from reporting injuries, and that less than half (44 percent) remembered receiving information about how to use the workers’ compensation system in the event of an injury.<sup>2</sup>

Lack of job control and fear of job loss are easily exploitable circumstances. As a consequence, reports abound of abusive supervisors who scream, humiliate, and threaten employees in order to meet their productivity quota.<sup>1,2,16</sup> If injured or concerned about mistreatment, these vulnerable and marginalized populations feel they have nowhere to turn, as immigrant workers often feel that an employer’s human resource and medical staff have only the company’s interest in mind. As stated by one Nebraska meatpacker, “It’s sad to not know who to complain to, because even the doctors and nurses are on the company’s side.”<sup>2</sup> This is especially true in non-unionized plants, where immigrant worker centers are taking an increasingly important role in protecting the rights of these workers.

Companies remain dependent on hiring workers who are more willing than many US residents to work for low pay in extremely difficult and hazardous conditions in an industry plagued with rapid employee turnover.<sup>17</sup>



**Lack of job control and fear of job loss mean immigrant workers are especially vulnerable to exploitation in the food processing industry.**

and processors began consolidating and moving their slaughterhouses to more rural communities.<sup>13</sup> The rules of efficiency had changed, and meat that was once further processed by wholesalers and retailers nearer to final markets was now processed at the plant. Broken and boned carcasses were cut into primal and subprimal cuts, packaged in vacuum-packed plastic, and shipped in boxes.<sup>13</sup> With narrow margins, industry profits depended on maximizing the volume of animals that could be processed. Plant size increased and along with it, the speed of processing and thus the number of animals that could be processed each day. For example, Smithfield's Tar Heel plant in North Carolina—now the largest hog-processing facility in the country—can slaughter, cut, pack, and ship more than 32,000 hogs a day.<sup>14</sup> Tyson's 54 poultry processing plants conduct similar operations for 42.5 million chickens per week.<sup>15</sup>

Industry consolidation meant that fewer independent small firms were operating. According to the Government Accountability Office (GAO), in 2005 the top four meatpacking companies slaughtered, processed, and packaged roughly 80 percent of the beef in the United States;<sup>b</sup> the top four pork producers controlled nearly 70 percent of the market; and the poultry industry was somewhat less concentrated, with the top five companies maintaining over 50 percent of the market share.<sup>3</sup>

Significant changes in the relations between organized labor and employers came along with this industry consolidation and the movement of processing to rural locations away from union centers. By the end of the 1980s, union membership among meat workers had fallen to 21 percent, compared to 46 percent during the 1970s and 1980s.<sup>6</sup> With the decline of union membership, wages declined and employee turnover increased.<sup>3</sup>

The flow of new labor—often to rural areas without a sufficient population to fully staff large processing plants—drew upon those with limited job options, who lacked either the skills or resources to find more desirable jobs, or relied upon company recruitment of new immigrants.<sup>1-3</sup> By 1994, one-third of production and sanitation workers in meatpacking plants were foreign-born

non-citizens—a proportion that would continue to increase in the coming years.<sup>3</sup> While these workers were provided with jobs that paid more than those in their homelands, US employers benefited from a flow of low-wage workers, and consumers reaped the benefits of low prices.

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*OSHA inspections and a Congressional investigation in 1987 revealed that official government statistics underestimated the severity of what was really happening inside these facilities as a result of underreporting by employers.*

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#### **The extent of current injury, illnesses, and dangerous working conditions revealed**

Amidst the technological and corporate restructuring that occurred within the meat and poultry industry, it is not surprising that injury and illness rates increased. Between 1981 and 1991, the injury and illness rate rose 45.5 percent.<sup>6,18</sup> More concerning though, was the rise in illness rates in particular: more than a five-fold increase from 1981 to 1991.<sup>12</sup> This increase was probably driven by work-related musculoskeletal disorders (MSDs) of the nerves and muscles in the wrist, arms, neck, and back. MSDs are counted as “illnesses” by the Bureau of Labor Statistics, but include a spectrum of overuse or repetitive strain injuries that result in often permanently debilitating conditions such as tendinitis and carpal tunnel syndrome. MSDs are an extremely frequent occurrence in the meat slaughter and processing industries. By the late 1980s, MSDs occurred at a rate approximately 75 times that for industry as a whole.<sup>19</sup>

OSHA inspections and a Congressional investigation in 1987 revealed that official government statistics underestimated the severity of what was really happening inside these facilities as a result of underreporting by employers. In 1987, OSHA levied an unprecedented fine on Iowa Beef Processors, Inc. (IBP, now a subsidiary of Tyson Foods) of \$2.59 million for what an OSHA official

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<sup>b</sup> In 2008 the Department of Justice and 16 states challenged the merger of JBS and the National Beef Packing Company, two of the top four beef packing companies in the United States. These actions led the companies to abandon the deal.



**Carpel tunnel syndrome is an all too common injury among meat packing and poultry processing workers.**

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described as “the worst example of under reporting injuries and illnesses ever encountered.”<sup>12</sup>

Testimony by representatives of the United Food and Commercial Workers International Union (UFCW) during Congressional hearings revealed that the IBP plant in Dakota City, Nebraska, maintained two injury logs: one maintained by the plant nurse and another version reported to OSHA. Copies of the original logs revealed that during a three-month period in 1985, 1,800 workplace injuries were recorded. Yet the version submitted to OSHA for the same time period included only 160 injuries.<sup>20</sup>

Testimony during these hearings provided disturbing accounts regarding the deteriorating, difficult, and dangerous working conditions that meatpacking workers faced and also described how employers often turned their backs on workers if they became injured. Many of the dangers were unchanged from Upton Sinclair’s day:

*In less than 10 years at the plant, my work on the kill floor left me with permanent hearing loss and four additional injuries. Three of these were knife cuts because they didn’t issue protective gloves to their workers back then. My fourth injury was due to the same slippery floors that continue to maim workers at the plant today—a meat cart slipped, causing a meat hook to grab me and rip my back open clear to the spine.<sup>21</sup>*

Yet another frequent occurrence—also a throw-back to the turn of the century—was evidence of disregard for workers’ health and wellness. Testimony provided accounts of workers sent back to work while still injured, and foremen ignoring workplace dangers and using fear to manage employees who voiced dissent about hazardous working conditions or their health.<sup>20</sup> As one worker commented:

*I was even instructed to run that machine, on occasion, when there was an ammonia leak in the area. When your eyes begin watering so badly you can’t see, then you know the job is unsafe. But the foreman would just say, “You will go back over there. You will run that machine, or you will be fired.”<sup>22</sup>*

In the UFCW’s review of the 1,800 injury and illness reports, extensive MSDs caused by repetitive strain were identified: “scores of workers whose illnesses are described as numbness in the left hand, locking and tingling of fingers, pain in shoulder going into fingers.”<sup>23</sup> A survey by the UFCW estimated that 70 percent of all plant employees demonstrated symptoms consistent with MSDs.<sup>24</sup>

In 1988, IBP was fined another \$3.1 million under the OSHA’s general duty clause for failing to keep the workplace safe from hazards associated with repetitive motions.<sup>25</sup>

### **The emergence of ergonomic solutions**

In 1988, IBP reached a settlement with OSHA and the UFCW which substantially reduced IBP’s combined fines of more than \$5 million in exchange for establishing long-term programs aimed at addressing the high rates of MSDs. Such an approach centered on using ergonomic controls: changes in the work environment such that work stations and tasks are designed to fit the worker, rather than the other way around. For the next three years at its 15

union and non-union plants, IBP agreed to: (1) identify workplace hazards; (2) prevent such hazards using work station and tool redesign, work practice controls, personal protective equipment, and the implementation of administrative controls; (3) use medical management to reduce the incidence and severity of MSDs through early identification and treatment; and (4) educate and train employees to actively participate in the prevention of MSDs.

According to one UFCW health and safety representative, the work on ergonomic solutions that began with IBP during the late 1980s and

early 1990s greatly improved health and safety practices throughout the meat and poultry slaughter and processing industry.<sup>26</sup> Greater automation, adjustable work stands, lower conveyer belts, and mechanical assists are now commonplace in most state-of-the-art plants. These design changes are a double win for industry: they not only prevent MSDs, they improve employee productivity.<sup>26</sup> With less strain, workers can perform tasks with greater ease. When workers are free from suffering from an injury on a job, they can work more efficiently. Yet even among plants heralded as having model ergonomic programs, health researchers

## A Worker's Grueling Day

by Franco Ordonez<sup>29</sup>

**C**elia Lopez felt lucky when she was hired at the House of Raeford Farms turkey plant in Raeford, North Carolina. But after six years, the 44-year-old mother of three said she feared the “hands that take care of my family” were ruined. At the [Charlotte] *Observer's* request, Lopez recounted a typical day:

- **6:45 a.m.** – Lopez walks through the gate of the sprawling plant. She's struck by the pungent smell of ammonia. She punches her timecard and puts on her gear—rubber boots, apron, hairnet and two pairs of gloves. She rushes to position. Workers must be at their posts before the production line starts. No excuses.
- **7 a.m.** – The line starts. Lopez begins by grabbing and placing turkey breasts on plates to be weighed. Each plate must weigh between 6 and 6-1/2 pounds. She grabs meat with her right hand and uses her left to hold the plate, then pushes the turkey along the line. She'll repeat this process hundreds of times an hour.
- **9:30 a.m.** – If Lopez needs a bathroom break, she must wait until a supervisor finds someone to replace her on the line. This can take minutes or hours—if approved at all. “Bathroom breaks are a privilege, not a necessity,” she said her bosses told her. If granted, she has 10 minutes to remove her gear, use the facilities and return.
- **11 a.m.** – Lunch.
- **11:30 a.m.** – Back on the line. She has processed hundreds of pounds of meat. The line is moving fast;

workers struggle to keep pace, she says. Conversation is minimal.

- **2 p.m.** – Break. She looks for a wall to press her back against and stretch her muscles.
- **2:30 p.m.** – The next two hours are the hardest—the piles of meat seem endless, she says. Her back cramps, pain spreading to her shoulders, arms and hands. She is exhausted from standing. Sometimes she feels dizzy.
- **4 p.m.** – She punches out. She changes out of her work clothes, washes her face and leaves.
- **4:30 p.m.** – She arrives home and takes a shower. “The meat smell gets stuck in your skin,” she says.
- **About 7 p.m.** – She helps cook dinner for her family. Grasping a spoon is hard, she says. She uses two hands to carry a dinner plate. Basic tasks take longer because of the pain. “It's like ants crawling through my hands, up my arms,” she says.
- **9 p.m.** – She takes two ibuprofen pills before rubbing her hands with alcohol and lotion—a nightly routine.
- **9:30 p.m.** – She goes to bed.
- **Midnight to 2 a.m.** – Lopez frequently wakes up, hands cramping. She squeezes her fists each time the pain is worse. She swallows more ibuprofen.
- **5 a.m.** – Her alarm sounds. The line starts in two hours. “Sometimes I cry. I just pray to God that he will show me the way.”

— Reprinted with permission from the Charlotte Observer

continue to document an excess prevalence of an array of MSDs compared to that among other workers from the same community.<sup>27</sup>

The hazard control techniques mentioned above are simply one component of a multi-faceted ergonomic management program that includes the voluntary guidelines established by OSHA in 1993.<sup>28</sup> Yet because in 2001 Congress and President George W. Bush repealed OSHA's newly issued mandatory ergonomic standard, which would have legally required employers to implement specific ergonomic hazard control programs, an employer has discretion as to what elements of an ergonomic program to implement. Reduced line speed is rarely one of them.

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*Today, only USDA, not OSHA, specifically regulates line speed. But USDA assesses permissible line speeds with respect to food safety considerations, not worker safety.*

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**Line speed: pain for workers, contaminated meat for consumers, and profit for employers**

Line speed, in combination with staffing levels on the line and the rotation (or non-rotation) of workers during their shifts, is directly related to the number of repeat motions workers make in a day. In 2009, the non-profit law and policy center Nebraska Appleseed issued a report revealing that among a representative sample of Nebraska meatpackers, line speed and having an adequate number of staff on the line were the biggest concerns for workers: 73 percent stated that line speed had increased in the past year.<sup>2</sup>

Why quicken the speed of the line? Line speed is directly related to profits. The faster the line, the more product produced, and the greater the profits. As a 2004 Human Rights Watch report stated, "Profit margins per chicken or per cut of meat are very low, often a few pennies a pound, so competitive advantage rests on squeezing out the highest volume of production in the shortest possible time."<sup>1</sup> Managers tell workers that the plant loses money every second the line is slowed or stopped.<sup>1</sup>

Workers often know when inspectors or visitors are at the plant, as revealed by multiple workers surveyed by Nebraska Appleseed. "When a visitor comes they slow it down and when they leave they speed it up."<sup>2</sup> "It would be good if they maintained an adequate number of workers on the line and the same line speed as when inspection visits take place."<sup>2</sup>

Today, only USDA, not OSHA, specifically regulates line speed.<sup>3</sup> But USDA assesses permissible line speeds with respect to food safety considerations, not worker safety.<sup>3</sup> As long as USDA inspectors can certify that the meat product is uncontaminated, line speed can increase with no concern for effects on worker health and safety. When line speeds are fast due to production pressures, the probability of human error or accidental contamination greatly increases.

USDA's own procedures to correct contamination include reducing line speed so that employees can exercise better caution and have the time necessary to sanitize tools.<sup>30</sup> Yet contaminated meat and poultry sicken thousands of people each year.

Based on the latest data from the Centers for Disease Control and Prevention, in 2007, 691 individuals became sick after eating contaminated chicken and 667 individuals were sickened by eating contaminated beef.<sup>31</sup> Yet the degree of underreporting is known to be significant—an estimated 38-fold in the case of *Salmonella*, and 20-fold for *E. coli O157:H7*.<sup>32</sup> Meat recalls are a common occurrence these days. In the first six months of 2010, multiple incidents resulted in the recall of over 6.1 million pounds of beef due to *E. coli O157:H7* contamination.<sup>33</sup>

Now the list of virulent *E. coli* strains is expanding. In August 2010, 8,500 pounds of hamburger were recalled after three people were made violently ill by consuming meat that was traced to Cargill and to a specific production lot.<sup>34</sup> Investigators tracked the likely source of the illnesses to *E. coli O26*, a strain that is legally allowed in beef sold to the public.<sup>34</sup> USDA and industry officials will undoubtedly debate the merits of giving this new bacterial strain "illegal" status, but will a focus on these downstream effects really correct the upstream causes at the point of slaughter and production that are affecting workers and consumers alike?

In 1996, the Pathogen Reduction Act was passed, allowing USDA to issue a new “risk-based” system of inspection that made the slaughter and processing industry, rather than USDA inspectors, responsible for identifying and fixing food safety hazards—the Hazard Analysis and Critical Control Point (HACCP) system. HACCP is considered a vast improvement over USDA’s former “poke and sniff” inspectional system in which inspectors relied on their sense of sight, smell and touch to identify contaminated meat and thus were unable to identify invisible bacteria or infection. Yet under the HACCP system, the role of USDA inspectors was changed to providing oversight over industry’s own inspectors.

Slowing or stopping production is a disincentive for addressing problems of potentially contaminated meat. HACCP also prescribes methods for the decontamination of meat using expensive technologies (e.g., carcass rinsing, ozonation, and irradiation among others) rather than fixing problems at the source. In 2001, a GAO report reviewed the effectiveness of this inspection system during a pilot stage and surveyed USDA inspectors and veterinarians working at poultry and meat slaughter and processing establishments. Sixty percent of those surveyed stated that line speed was too fast to ensure product safety.<sup>35</sup> While USDA inspectors still provide oversight, they are discouraged from stopping production lines when they suspect contamination. A USDA memo in 2002 stated that inspectors would be held responsible for halting production unless there was clearcut evidence of product contamination.<sup>36</sup>

It’s unclear whether this USDA internal policy still holds true today. Nevertheless, if action is not taken when an inspector suspects a problem, the odds are greatly increased that one piece of contaminated meat can contaminate machinery and other products.<sup>36</sup>

#### **Coming full circle: attempts to fix food safety neglect worker health**

As a result of the public’s growing concern over food recalls and associated illness outbreaks, in 2009 President Obama vowed to “upgrade our food system for the 21st century.”<sup>37</sup> While such food system reforms are crucially needed, the focus of these efforts is consumer health—once



**A meat cutter in a packing plant in Baltimore, Maryland.**

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again, neglecting the health of workers, just as in the day of Sinclair Lewis’s *The Jungle*. Ironically, the President even referred to the time of *The Jungle*, noting that many of the nation’s food-safety laws “have not been updated since they were written in the time of Teddy Roosevelt.”<sup>37</sup> Yet, only when we succeed in making the connection that healthy food is produced by healthy workers will we find ourselves with a safer, healthier food system.

#### **Improving coordination between USDA and OSHA**

USDA inspectors have a daily presence at many meat and poultry slaughter and processing facilities. With proper cross-training and agency coordination, these federal safety inspectors could help to im-

prove workplace safety as part of their duties to protect consumer safety.

The first step in such an approach has already been taken, although it took a terrible tragedy to compel the agencies to act. In 1991, a fire claimed the lives of 25 poultry plant workers in Hamlet, North Carolina, many of whom could not escape because the owner locked the plant doors based on a suspicion that workers were stealing product.<sup>38</sup> While a USDA poultry inspector knew of the routinely locked doors and reported to the owner that his actions were in violation of safety codes, he did not report the incident(s) to OSHA.<sup>3</sup> Lives likely would have been spared if only the USDA inspector had reported this violation.

In response to this accident, USDA and OSHA revised an existing memorandum of understanding (MOU) between the two agencies in 1994.<sup>3</sup> The MOU established a process and framework for: (1) training USDA meat and poultry inspection personnel to improve their ability to recognize serious hazards within the meat and poultry industry; (2) reinforcing procedures for meat and poultry inspection personnel to report unsafe and

spectors, only one such training has occurred. The 2005 report revealed that over an 11-year period since the MOU was signed, USDA inspectors made 31 referrals to OSHA, 26 of which resulted in an OSHA inspection.<sup>3</sup> However, 31 referrals in hundreds of facilities where inspectors are often present each and every day indicates an underutilized system of coordination.

The GAO report revealed that USDA officials cited three primary reasons for the failure of the referral system: (1) workplace hazards are not the focus of their inspections; (2) inspectors often deal with hazards by working directly with plant management; and (3) USDA inspectors don't want to be a part of any resulting inspection—which might put them at risk of being cited for violations, such as not wearing their personal protective equipment.<sup>3</sup>

OSHA could accomplish more effective enforcement of critical safety and health standards with more routine USDA signaling of the need for inspections. It's clear that better coordination between these two federal agencies is still badly needed and represents a major opportunity.

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***OSHA could have more effective enforcement if USDA inspectors routinely alerted OSHA to potential safety hazards.***

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unhealthy working conditions to which workers are exposed; (3) instituting new procedures for USDA's meat and poultry inspection personnel to refer serious workplace hazards affecting plant employees to OSHA; and (4) coordinating possible inconsistencies between OSHA's job safety and health standards and USDA's sanitation and health standards.<sup>39</sup> Through the MOU, USDA inspectors are not expected to replace OSHA inspectors. With improved training and a clear referral system, USDA inspectors are to be able to recognize serious workplace hazards and report them to OSHA and to plant management.

According to a 2005 GAO report, while OSHA has put together training materials for USDA in-

**Improving prevention: new approaches beyond enforcement are needed**

As the current OSHA administrator David Michaels has described, enforcing compliance with OSHA regulations is intended to have a strong preventive purpose. "The credible threat of enforcement makes most employers think twice about cutting back on preventive maintenance, training or investments in safer working conditions. The fear of a serious citation and heavy fine should make employers consider the consequences of cutting corners on safety to meet a deadline. And the threat of strong enforcement can encourage employers to seek out a safety consultant or use the free services of our On-Site Consultation Program."<sup>40</sup>

While employers are required to comply with OSHA rules, they do not have to demonstrate compliance unless they are inspected. In 2009, OSHA inspected 97 poultry plants and 139 meat-packing plants. These inspection rates correspond roughly to inspecting one out of six poultry plants and one out of eleven meatpacking plants.<sup>c,41,42</sup>

<sup>c</sup> Rates derived from OSHA inspection data and US Census county business pattern data for NAICS codes 311611 and 311615.

Limited resources are an endemic problem confronting OSHA's system of enforcement. Among the criteria OSHA uses to identify high-priority plants for the limited number of inspections it can conduct each year are high rates of injury and illness and the severity of injuries or illnesses. Yet, just as in 1987, it is still difficult for OSHA to rely on the available data to set these priorities because of their questionable reliability.<sup>3,43</sup>

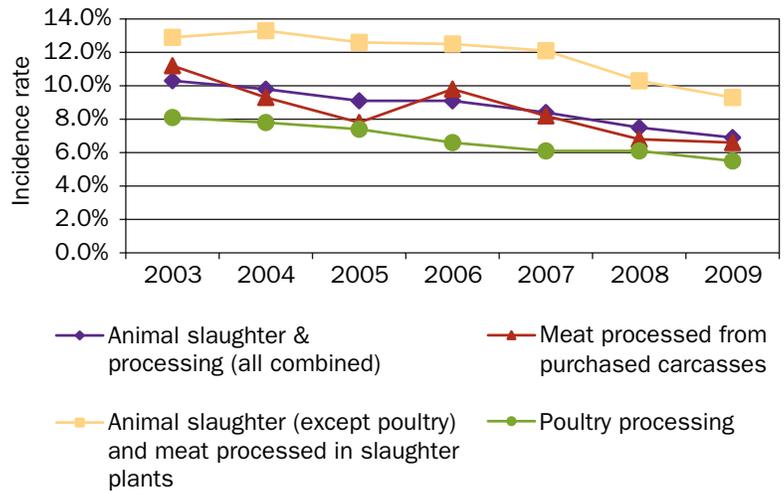
**Underreporting of injury and illness data: a continued problem**

From 1991 to 2001 the reported injury and illness rates in the meat and poultry slaughter and processing industry fell by 50 percent.<sup>44</sup> More recent trends from 2003 through 2009 also show steady declines (see Figure 1). In 2009, non-fatal injury or illnesses impacted roughly one in 14 workers in the meat and poultry slaughter and processing industries (6.9 percent<sup>d</sup>).<sup>7</sup> While lower than in years prior, this injury and illness rate is still 60 percent higher than that for all manufacturing industries combined.<sup>7</sup> In addition, 2009 Bureau of Labor Statistics (BLS) data reveal that the slaughtering and processing of meat (excluding poultry) had the highest incidence rate of severe cases—those that resulted in days away from work, restricted work activity, or job transfer.<sup>45,e</sup>

Industry representatives describe the trends of declining workplace injury and illness rates as evidence that their operations are safer for workers.<sup>44</sup> It is likely that plants which have successfully instituted voluntary multi-faceted ergonomic programs have experienced improvements in some areas. Yet, just as Congressional hearings in 1987 revealed underreporting of injuries and illnesses, today's investigators find evidence of similar problems.

Investigative journalists from *The Charlotte Observer* reported in 2008 that while the House of Raeford's poultry slaughter and processing plant in Greenville, South Carolina, claimed a five-year safety streak with no lost-time accidents, multiple cases were identified in which injured workers were brought back to work hours after surgery, or supervisors and/or plant nursing staff dismissed employees' requests to see physicians when their

**FIGURE 1**  
Reported rates of nonfatal occupational injuries and illness in meat and poultry slaughter and processing industries, 2003–2009.



Source: Bureau of Labor Statistics, Table 1—Incidence Rates—Detailed Industry Level, 2003–2009. Available at: <http://www.bls.gov/iif/oshsum.htm>. Accessed: October 29, 2010.

pain became too much to bear.<sup>46</sup> By getting workers back to work even though they are still injured and in pain, an installation the size of the Greenville plant can save hundreds of thousands of dollars in workers' compensations costs.<sup>47</sup> In addition, the plant is more likely to avoid an OSHA inspection because with no lost-time accidents it appears as though injuries are of the less severe variety.

In another House of Raeford plant in West Columbia, South Carolina, the company reported zero MSDs from July 2003 to April 2007. However, journalists from *The Charlotte Observer* found 12 employees who worked at the plant during the same time who said they suffered pain brought on by MSDs; indeed, two of them reported having surgery for carpal tunnel syndrome at company expense.<sup>46</sup> This company reports some of the industry's lowest illness rates and thus as of 2008 was rarely inspected by OSHA.<sup>46</sup>

While company officials dispute allegations of underreporting or mistreating ill or injured workers, a 2009 GAO report substantiates concern for the underreporting of work-related injuries and illnesses in meat and poultry industries.<sup>43</sup> The report stated that many employers did not

d NAICS code 31161 (animal slaughtering and processing).

e NAICS code 311611 (animal (except poultry) slaughtering).



**Safe working conditions and a safe food supply both require that workers have a voice in controlling hazards.**

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report workplace injuries and illnesses for fear of increasing their workers' compensation costs or hurting their chances of winning contracts. The report also revealed that workers stated they did not report job-related injuries for fear of being fired or disciplined, or for fear of jeopardizing rewards based on having low injury and illness rates.

UFCW recently compared injury and illness data among its unionized meat and poultry plants to BLS data overall and showed that rates among unionized plants were consistently higher.<sup>26</sup> These data support what the GAO report and other health and safety experts contend: when workers are less fearful about employer retaliation if they report their workplace injury or illness, they are more likely to report.

Yet OSHA's own recordkeeping policies are also part of the problem of underreporting. In January 2002, OSHA's revised injury and illness recordkeeping rule went into effect.<sup>48</sup> This new rule changed definitions and recording criteria. While these changes are nuanced and subtle, they greatly affected how data are collected and how trends are interpreted—data after 2002 are not comparable to data from earlier periods.<sup>12,48-51</sup> For example, the column for recording "repeated trauma" was deleted from the workplace injury and illness log. While the original revised recordkeeping rule contained a section that added a specific illness column for MSDs, it never became effective and in 2003 the MSD column was officially eliminated.<sup>52</sup>

While reporting of MSDs is still required, there are no specialized recording criteria for these conditions, and thus enumerating the extent and nature of specific MSDs is impaired.<sup>48</sup> In addition, exacerbation of a preexisting MSD may go unrecorded given how the revised recordkeeping rule defines a new case.<sup>49</sup> OSHA's summary of the new rules specifies that "aggravation of a cause where signs or symptoms have not resolved is a continuation of the original case" and therefore not considered recordable.<sup>49,53</sup> OSHA's recordkeeping handbook further explains, "If the worker has not fully recovered and no new event or exposure has occurred in the workplace, the case is considered a continuation of the previous injury or illness and is not recordable."<sup>48</sup>

Therefore, if a poultry worker's pre-existing work-related tendinitis is once again exacerbated, it's likely that such a case will go unrecorded—a result easily justified under OSHA's own rule. Researchers as well as OSHA officials have reported that such recordkeeping changes have only contributed to the apparent downward trend of injury and illness rates.<sup>12,49,50</sup>

#### **Recordkeeping policies: is change on the horizon?**

Changes to enforce accurate injury and illness reporting may be on the horizon. Academic researchers have estimated that the magnitude of the underreporting across all industries may be extensive.<sup>54-57</sup> For example, one study that surveyed data from six states revealed that the BLS injury and illness statistics missed almost 340,000 lost-time

injuries during the years 1998–2002 and at a minimum, the reported statistics missed 24 percent of injury cases.<sup>55</sup> As a result of these academic studies and the investigative journalism of *The Charlotte Observer*, a GAO investigation was launched and legislative hearings on the underreporting of workplace injuries and illnesses were held.<sup>46,58,43</sup> Congress has subsequently directed OSHA to begin an enforcement initiative on recordkeeping.

Effective February 19, 2010, OSHA launched its Recordkeeping National Emphasis Program.<sup>59</sup> The aim of the program is to ascertain whether, and to what extent, employers are underrecording workplace injuries and illnesses. Meatpacking and poultry processing industries are targeted for this initiative. The program will also assess injury and illness among cleaning and sanitation workers—who are not employed directly by the plants in most cases—an issue that the GAO’s 2005 report stated was a key contributor to the problem of incomplete data. Special procedures for assessing the scope of musculoskeletal disorders will be included.

In addition to its Recordkeeping National Emphasis Program, OSHA also held hearings in 2010 to discuss its proposed revisions to illness and injury reporting requirements. As proposed, MSDs will once again be specified on the work-related injuries and illness form and the total number of MSDs each year will be summarized.

Without accurate surveillance data, OSHA is unable to evaluate whether its hazard prevention policies and programs are being effective. While OSHA’s new focus on improving recordkeeping is a step in the right direction, it is too soon to tell whether new actions will be taken or new policies will be issued to redress underreporting. Yet OSHA’s enhanced actions are serving to put employers on notice to a degree not seen for over a decade.<sup>26</sup>

#### **Fines for violations: signs of improvement?**

If OSHA’s deterrence-based system of levying penalties on non-compliant employers is to operate effectively, the economic consequences of violations must be considerably higher than the costs of avoiding compliance in the first place. Yet the OSHAct itself limits the size of fines the agency can impose. For “serious” violations, there is a \$7,000 maximum. If OSHA can determine that a company’s

violation is “willful,” far stiffer fines can be levied, up to \$70,000 per violation. Penalties can be reduced based on the discretion of OSHA officials and Department of Labor attorneys after informal discussions with companies or if the cited employer challenges the citation and enters into settlement negotiations with the agency. More often than not, OSHA chooses to settle cases because it lacks the resources to litigate.<sup>60</sup>

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*Without accurate surveillance data, OSHA is unable to evaluate whether its hazard prevention policies and programs are being effective.*

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As reported by the investigative journalism team at *The Charlotte Observer*, from 1997 to 2007 roughly three-quarters of OSHA fines against poultry companies were lowered or eliminated. For example, in 2001, OSHA inspections at Tyson Foods in Wilkesboro, North Carolina, found more than 30 violations that involved hazards that could result in amputations, fractures, or falls. The \$13,000 proposed fine was dropped to less than \$1,800. When *The Charlotte Observer* examined this issue further in its 2008 series, the average starting fine to the poultry industry was roughly \$2,300 and fines were reduced to an average level of \$1,100. The problem with such minimal fines is the perverse message they send to employers: the financial cost of ignoring the law is much lower than assuring compliance with OSHA standards.<sup>60</sup>

Yet very recently, there are signs that OSHA may be moving towards higher penalties and more frequent use of findings of “willful” violations. In 2010, OSHA levied its highest-ever fine on a poultry plant run by Allen Family Foods in Maryland. The \$1.03 million fine was issued based on 51 violations, 15 of which were considered “willful.” Also in 2010, OSHA fined the Wisconsin-based meatpacking company VPP Group LLC \$369,500 for 38 violations, four of which were considered “willful.” Time will tell whether these fines will have a ripple effect on the industry as a whole of making the cost of hazard prevention lower than the cost of noncompliance.

## LESSONS LEARNED

There remains a significant gap between the frightening evidence of injury and illness revealed by academic researchers, journalists, labor and human rights organizations, on the one hand, and the unreliable official injury and illness statistics on the other. Questionable surveillance data cannot serve the purpose of effectively targeting limited resources to remedy workplace safety and health hazards. While OSHA's Record-keeping National Emphasis Program and its efforts to include MSDs on workplace injury and illness log forms are important recent advances, it is unlikely that our existing illness and injury reporting system can completely capture the true injury and illness experience of workers without a major overhaul.

Second, OSHA's enforcement system will never have the resources necessary to reach all establishments. Thus, the recent trend towards increased fines for violations is crucial for OSHA's deterrence-based system of compliance to operate effectively. In addition, the MOU between USDA and OSHA, last revised in 1991, provides great potential to tap the presence of USDA inspectors to enhance protections in the meat and poultry slaughter and processing industries. Yet over the last 20 years, results from this interagency agreement are meager and warrant reexamination.

Third, real improvements in the health and safety of meat and poultry slaughter and processing workers can be realized only when the unequal power dynamics on the plant floor are remedied. Workers' lack of job control and fear of job loss, especially among immigrant workers, are easily exploitable circumstances. New procedures and practices are needed to improve the capacity of workers to identify, report, and prevent workplace hazards.

OSHA has taken preliminary steps towards rulemaking efforts requiring a workplace safety and health prevention program, the Injury and Illness Prevention Program (I2P2), which has real potential for protecting all workers,

including those that are most vulnerable. Yet where there are serious imbalances of power between managers and workers—such as in some meatpacking and poultry processing facilities and especially among non-unionized plants—simply establishing a pro forma workplace health and safety committee or a worker complaint system may not be enough to guarantee real employee empowerment and real protections. Therefore, another critical component of addressing these power imbalances to establish safer conditions lies in workers' right to organize unions, effective union representation, and workers' centers.

Lastly, the disconnect between the health of meat and poultry slaughter and processing workers and the safety of the meat landing on the public's table must be addressed. In the absence of an OSHA ergonomics standard, OSHA or its research partner, the National Institute for Occupational Health and Safety (NIOSH) should have more influence in the evolution of food safety decisions by USDA that are having an impact on workers, such as limits on line speed.

Through OSHA as well, speed of work should be specifically addressed, slowed, and regulated. Protection of workers in the meat and poultry slaughter and processing industries requires slowing down production—as well as improving the capacity of workers to be active participants in comprehensive workplace health and safety processes to address workplace dangers, when they arise. In order to protect workers where health and safety interventions such as slowing line speed may impact productivity and profits, increased regulation may be the only way to level the playing field and ensure that all establishments operate similarly and safely for both workers and consumers.

Only when we embrace the notion that healthy food comes from healthy workers will we achieve a safer, healthier food system.

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*Only when we embrace the notion that healthy food comes from healthy workers will we achieve a safer, healthier food system.*

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## CASE STUDY 6 — TIMELINE

YEAR	EVENT
1906	Upton Sinclair's novel <i>The Jungle</i> exposes worker health and food safety hazards in the meatpacking industry in Chicago.
1906	US government passes the Pure Food and Drug Act and the Meat Inspection Act—laws to safeguard the public from adulterated meat.
1943	US Department of Labor finds that injuries and accidents are causing absence from work in the meatpacking industry at a rate double the national average for manufacturing.
1943	Labor organizations secure their first national contracts.
1950s–1970s	Automation and mechanization transform most meat slaughter and processing plants.
1960s–1980s	Iowa Beef Processors, Inc. (IBP), begins a corporate transformation that changes the face of the entire industry. The meat slaughter and processing industry becomes consolidated. Plants move to more rural communities and the size of individual establishments dramatically increases.
Late 1980s	Union membership in meat slaughter and processing plants falls to 21 percent compared to an average membership rate of 46 percent during the 1970s and 1980s.
1987	Inspections by OSHA and a Congressional hearing find significant underreporting of workplace injuries and illness by IBP. Testimony by members of the UFCW reveals that original injury and illness logs during a three-month period in 1985 report 1,800 cases, yet only 160 were reported to OSHA. UFCW estimates that 70 percent of workers in this plant have symptoms consistent with MSDs. The company is fined \$2.59 million.
1990	OSHA issues its ergonomic program management guidelines for the meatpacking industry.
1991	Injury and illness rate among meat slaughter and processing workers reaches 45.5 percent—a 40 percent increase compared to the 1981 rate. There is a five-fold increase in the illness rate in particular between 1981 and 1991.
1991	A fire claims the lives of 25 poultry plant workers, many of whom could not escape because the plant door was locked by the employer. USDA inspectors knew of the locked door, and this prompts a new MOU between OSHA and USDA to improve worker health and safety training among USDA inspectors and to establish a clear referral system to OSHA to follow up on specific concerns.
1996	USDA codifies the Pathogen Reduction Act and its Hazard Analysis and Critical Control Point (HACCP) system, allowing the majority of product safety inspections to be conducted by industry inspectors, rather than USDA.
2001	The US Government Accountability Office reviews a pilot HACCP system and finds that 60 percent of USDA inspectors and veterinarians surveyed by the GAO believe that line speed is too fast to ensure product safety.
2001	Congress and President George W. Bush repeal OSHA's ergonomic standard.
2001	Reported injury and illness rates for meat and poultry slaughter and processing workers fall by 50 percent between 1991 and 2001.
2002	OSHA implements revisions to its injury and illness recordkeeping rule.
2003	OSHA officially deletes the MSD column from its injury and illness reporting log.
2004	Human Rights Watch publishes an influential report, <i>Blood, Sweat, and Fear: Worker' Rights in U.S. Meat and Poultry Plants</i> , detailing conditions and vulnerabilities in meat and poultry industries that violate workplace health and safety regulations and principles of human rights.

YEAR	EVENT
2005	GAO issues a report on the meatpacking industry and finds that more effort is needed to protect the health of these workers and that true injury rates are likely higher than reported rates. The report finds that efforts are needed to improve the validity of injury and illness statistics.
2008	<i>The Charlotte Observer</i> publishes its series, “The Cruellest Cuts,” detailing human rights and worker health and safety abuses in the poultry industry. The series, in combination with evidence from academic studies, prompts a GAO investigation and legislative hearing about underreporting of workplace injuries and illnesses—statistics that help to target OSHA’s inspections.
2009	Nebraska Appleseed publishes its notable report, <i>The Speed Kills You</i> , which documents meat-packing safety and workplace conditions from the perspective of workers in one of the country’s largest meat processing states.
2009	OSHA inspects roughly one in six poultry slaughter and processing plants and roughly one in 11 meat slaughter and processing plants.
2009	OSHA launches its Recordkeeping National Emphasis Program to improve the reporting of injury and illness. The meat and poultry slaughter and processing industry is a target for the program.
2010	OSHA holds hearings on the agency’s proposal to reinstate MSDs on injury and illness log forms.
2010	OSHA’s highest-ever fine to a poultry slaughter and processing plant for 51 violations, 15 of which were considered “willful,” is issued for \$1.03 million.

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## CONCLUSIONS

# Synthesis and Recommendations

**APRIL 5, 2010**

Explosion at Upper Branch Mine in West Virginia kills 29 coal miners

**APRIL 20, 2010**

Eleven men dead on Deep Horizon BP oil rig in Gulf of Mexico

**JULY 14, 2010**

Oven at U.S. Steel plant near Pittsburgh explodes, injuring 15 workers, at least two critically

**T**HE SUFFERING OF WORKERS SEEMS to be front-page news nearly every day. Yet for all the disasters that appear in the headlines, far more workers die or are injured without making the headlines. And these incidents not only affect the injured workers, but greatly impact their families and communities. Every day, fourteen workers die, and each year, more than 4 million are seriously injured or are sickened by exposure to toxic agents.<sup>1</sup> Real change to the nation's approach to workplace safety and health is desperately needed.

But what kinds of changes? There is a risk that the eagerness to fix ineffective worker safety and health protections will lead to quick, reactive efforts to undo the failings of earlier administrations, without sufficient thought about the deeper limitations of the regulatory approach that was developed in the late 1960s and is still largely intact.

The quick response approach has three potential pitfalls: (1) it precludes broader system-level changes to occupational and environmental health; (2) it inhibits broad coalition-building that could reduce the compartmentalization of worker health, consumer health, and environmental health; and (3) it could inadvertently shift risks from one sector of society to another in the search for a solution to a problem too narrowly defined.

To fully understand the limits of our current federal worker safety and health policies and identify long-term solutions that are both viable and effective, we must step back and view broadly the systems of production within which work environments function. More inspections and more standards alone will not cure structural flaws in occupational safety and health regulations in the United States. In addition, agencies other than the Occupational Safety and Health Administration (OSHA) are also responsible for worker protections—for example, the Mine Safety and Health Administration, in the case of mine workers, and the Environmental Protection Agency (EPA) in the case of farm workers exposed to pesticides.

Our research has led to the conclusion that the most effective reforms will come through preventive redesign of workplaces, work processes, and products and not simply tighter regulation of the current way of doing business. Further, reforms to OSHA regulations need to be coupled with a new research agenda—through the National Institute for Occupational Safety and Health (NIOSH) and other science agencies—focused on more prevention-oriented research. To begin to move this process forward, we undertook the task of researching and writing a set of stories demonstrating why

and how our occupational safety and health systems are broken and identifying lessons learned that we hope can provide insights on how to fix those systems.

### **Six case studies: revealing where we went wrong in our systems to protect workers**

The Lowell Center for Sustainable Production at the University of Massachusetts Lowell sought to use the rich history of actions and inactions regarding selected workplace safety and health policies and practices in the United States to reveal compelling evidence for national policy reforms that will lead to stronger, more effective, prevention-focused worker safety and health protections. The resulting six case studies illustrate a range of current failures in our approach to workplace safety and health.

#### **Floor finishers, lacquer sealers and fires: safer product alternatives are the solution.**

Three Vietnamese floor finishers were killed in two separate fires in Massachusetts in 2004–2005. In each case, highly flammable lacquer sealer vapors ignited and flashed almost instantly across a newly varnished floor, causing a deadly inferno. Fatal fires like these, as well as less dramatic but also serious neurological damage and other adverse health

effects from floor finishing chemicals, illustrate the dangers faced by small entrepreneurial businesses staffed by immigrant laborers. Despite the challenges to creating protections for these workers, this case study has a hopeful ending. It demonstrates the power of connecting the health struggles of immigrant workers with community organizing efforts that resulted in landmark legislation in Massachusetts prohibiting highly flammable floor finishing chemicals. The story shows how grassroots organizing can lead to practices that protect workers—in this case, replacing dangerous products with safer alternatives.

#### **When my job breaks my back: shouldering the burden of work-related musculoskeletal disorders.**

Work-related musculoskeletal disorders are a serious public health concern. Our case study on back injuries and other musculoskeletal disorders among health care workers, hotel housekeepers, and poultry processing workers illustrates how badly ergonomic injuries can disable us and affect our everyday well-being both at work and outside our work. Despite overwhelming scientific evidence on the risks and the economic costs of failure to control ergonomic hazards, OSHA was prevented from mandating comprehensive solutions. In the first months of 2001, OSHA's Ergonomics Standard was repealed with the first use and thus far the only use of the Congressional Review Act—a move made possible by a Republican Congress and the newly elected President George W. Bush. Yet a decade later, musculoskeletal disorders remain one of the leading causes of lost work time and an extremely burdensome “cost of doing business” with impacts felt throughout the economy and the health care system.

Successful initiatives in several states are highlighting at least one way forward: programs that focus first on reducing injuries in high-risk tasks such as manual patient handling and transfer in the health care and social assistance sectors, and then on tackling particularly hazardous occupations, and finally entire industries. Further, occupational safety and health management systems based on real worker participation and leadership commitment will help address ergonomic risks in those industries where the burden is heaviest.



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### **The poison that smells like butter: diacetyl and popcorn workers' lung disease.**

In 2000, a cluster of disabling and potentially fatal lung disease among workers was identified in a microwave popcorn plant in Jasper, Missouri. A few years later, additional cases were identified among workers exposed to butter flavoring chemicals while working at their food flavoring manufacturing jobs. This shocking case study raises a troubling question: how could a chemical that can destroy a worker's lungs in just a few months evade our system of chemical regulation? Workers were once again the "canary in the coal mine" for the general public whose lungs are also being damaged by the artificial butter flavoring chemical, diacetyl.

This case points out the challenges of chemical-by-chemical regulation spanning multiple agency jurisdictions, and highlights the essential role played by occupational and environmental health specialists on the front lines, detecting and minimizing harm to workers. It also illustrates the need for national comprehensive chemicals policy reform leading to safer chemicals and ensuring that

risks are not transferred among workers, communities, and the environment.

### **Injuries are not accidents: construction will be safe when it's designed to be safe.**

Every day in the United States, approximately three workers die in construction accidents.<sup>a</sup> And for every worker who is killed, more than 100 more suffer injuries that result in lost work time, lost wages, and a drag on productivity.<sup>b</sup> Investigations of construction accidents invariably find a complicated web of causal factors involved in these tragic, yet avoidable events. To manage these complex occupational hazards and protect workers adequately, the construction sector needs a more comprehensive approach than mere compliance with government standards or the sporadic application of control measures following a serious accident.

<sup>a</sup> Based on the US Bureau of Labor Statistics' total fatality cases (975) in construction, in 2008.

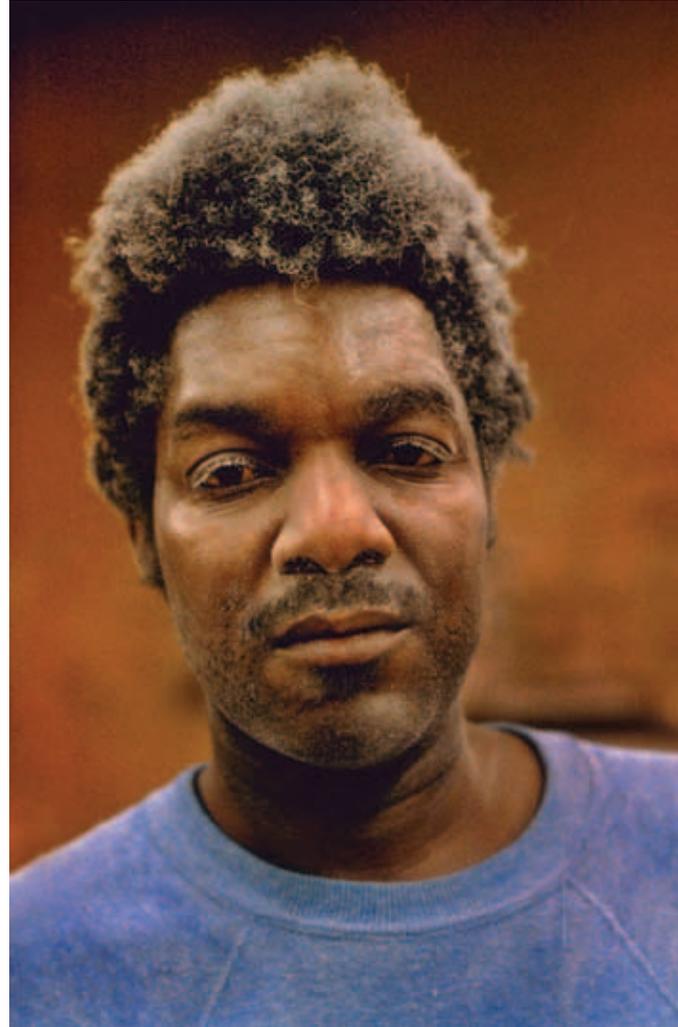
<sup>b</sup> Based on the US Bureau of Labor Statistics' total non-fatal cases (120,240) in construction, in 2008.

This case study shows the importance of implementing an occupational safety and health management system on the worksite. A commitment to a comprehensive occupational safety and health management system can break through bad habits, careless thinking, and the inertia that prevents managers and workers from making real changes in safety procedures. Further, this case study shows how vital training and community-based safety and health strategies are for the immigrant workers who are increasingly employed in this sector. Journalists have a role to play, too. When a workplace disaster happens, the reporting too often frames the problem as a tragic and inevitable accident rather than as the result of an avoidable failure in managing a dangerous human activity.<sup>2</sup> By redesigning workplaces to avoid hazards in the first place, we can use innovation and ingenuity to ensure workers are protected.

**Regulating methylene chloride: a cautionary tale about setting health standards one chemical at a time.**

OSHA's chemical-by-chemical risk-based standard setting process is so slow that years can go by between the time that it is clear that workers are being dangerously over exposed and the time that effective controls are put into place. The tortured path to OSHA's methylene chloride standard is a potent illustration of the limits of the current standard-setting process. The methylene chloride standard took more than a decade to establish. And, under the standard that was finally set, the legal exposure limit continues to allow workers to be exposed to this cancer-causing chemical at a level hundreds to thousands of times higher than is permitted for the general public.

By focusing the debate on the narrow question of exactly how risky a specific exposure level might be, OSHA and its risk-based standard setting process distracts attention from the more important question: do we need this chemical at all? Are there safer alternatives? In the case of methylene chloride, the risk debate allowed some employers to shift from methylene chloride to an untested, unregulated substitute chemical—1-bromopropane—which turned out to be a neurotoxicant, a reproductive toxicant, and possibly a more potent carcinogen than methylene chloride.



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**Safe food from safe workplaces: protecting meat and poultry processing workers.**

Over a century ago, Upton Sinclair's novel *The Jungle* exposed the dehumanizing labor conditions and unsanitary environment of the meatpacking industry. Slaughtering and processing of meat and poultry for our food supply are inherently dangerous jobs. These hazards are well known and predictable, and solutions to preventing harms are feasible. Yet since Sinclair's time, rates of injuries and illnesses in the meatpacking industry have been notoriously high.

The long history of the meat and poultry slaughter and processing industry shows how solutions to protect the safety and health of workers cannot be addressed in isolation; eliminating hazards on the production line, providing dignity and job satisfaction to line workers, and ensuring a safe and ecologically sound food supply are all

components of the same food systems approach to this industry. The roadblocks to effective food safety practices and to healthy jobs are the same: workers with little control over their jobs on the plant floor, regulatory agencies with inadequate resources and powers, and the perverse economics of our industrial meat and food production system in which narrow profit margins drive business decisions with insufficient commitment to either working conditions or food quality.

### **From individual tragedy to broad understanding: some lessons learned**

As we dissected these stories, each with its own long history of problem identification, scientific evidence, policy prescriptions, and often frustrating delays and setbacks, we saw some common themes. These lessons learned should lead to solutions, to fresh approaches, and to new commitments.

Important lessons for preventing workplace injury and illness:

- Both employers and employees have essential roles in making workplaces healthy.
- Clear and comprehensive laws and regulations are critical elements of worker health protections, but can be more effective when combined with other strategies such as incentives to innovate with inherently safe technologies, and campaigns that link improvement in worker health to goals like environmental protection and energy efficiency.
- Adequate resources are needed to ensure the deterrent effect of enforcement, but there is also a clear need for sufficient technical resources to help firms more effectively protect workers and communities, as well as resources to promote research and application of safer production systems and products.
- It is impractical to rely solely on federal inspectors, working to ensure compliance with hundreds of specific rules, as the primary solution to our occupational health crisis: this approach is either too expensive (if enough inspectors could be hired) or ineffective (with the current numbers of inspectors).
- Workplace health and safety and environmental protection should be viewed as two aspects of the design of sustainable systems of production. Economically, this can create efficiencies, and

politically, it can help forge alliances among traditionally contentious interests.

- Globalization has not only sent many hazardous jobs overseas, it has also led to the concentration of marginalized immigrant workers in those dangerous and exhausting jobs that remain in the United States. Immigrant rights and occupational health are increasingly linked.
- Occupational and environmental health policies that focus upstream—on prevention at the source of the hazards—are not only feasible, but also protect workers' health and save money for companies and government agencies.



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*“The whole system is clogged up like I-15. There are traffic jams, so that makes you less productive and makes you nervous. Then you hurry up because you’re trying to be a productive employee. Just like how when you speed on a freeway you have less time to react, when you hurry on the job you have less time to correct that mistake.”*

— *An iron worker employed on one of the two major construction projects in Las Vegas where nearly a dozen construction workers died in a period of less than 17 months*

### **Solutions: promising directions to improve worker safety and health**

We have identified seven high-priority strategies that could have important impacts on making workplaces safer. The first three are policy changes within the traditional boundaries of OSHA’s activities, while the remaining four involve changes in other agencies and organizations.

#### **1. Establish a Workplace Safety and Health Program Rule that emphasizes injury and illness primary prevention and worker participation.**

Several of the case studies concluded that a key solution for preventing injury and illnesses is to improve the capacity of both employees and employers to identify and prevent workplace hazards. In response to nearly a dozen fatalities on a job site in Las Vegas, one iron worker for example identifies factors contributing to the accidents, “The whole system is clogged up like I-15. There are traffic jams, so that makes you less productive and makes you nervous. Then you hurry up because you’re trying to be a productive employee. Just like how when you speed on a freeway you have less time to react, when you hurry on the job you have less time to correct that mistake.”<sup>3</sup>

OSHA could issue a rule similar to those already in place in states such as California, requiring each employer to develop, implement and continuously evaluate a workplace safety and health prevention program. This standard has the potential to comprehensively address a range of hazards present in workplaces without establishing specific rules for each. Each employer’s plan would include a set of core practices fundamental to worker safety and health to fill significant gaps in hazard

prevention. These core practices—with measurable performance targets—include:

- procedures for management commitment and employee involvement (and also community involvement, where applicable) in all facets of planning, implementing, evaluating, and decision-making about the program;
- clear requirements for worksite analysis to identify and assess all hazards and their root causes;
- hazard prevention and control, including requirements to evaluate hazards and assess safer alternatives;
- requirements for employee, manager, and supervisor safety and health education and training and
- requirements for medical surveillance.

Workplace safety and health prevention plans should include subcontractors’ employees, who often make up a significant fraction of the workers in an establishment.

In May 2010, OSHA took preliminary steps towards rulemaking efforts requiring workplace safety and health prevention programs, the Injury and Illness Prevention Program (I2P2). This appears to be a promising prevention-oriented policy solution to better protect workers.

#### **2. Revamp OSHA’s enforcement system by leveraging existing agency inspectional systems, as well as cross-training of inspectors, to support greater regulatory compliance by employers.**

Establishing a workplace safety and health program could fill an important gap in motivating and maintaining healthy and safe workplaces, as it is clear that the threat of inspections and fines alone is simply inadequate. Yet enforcement re-

mains an important element of workplace protections. While OSHA has prioritized enhancing its enforcement efforts by hiring new compliance officers to inspect more facilities, and also by changing how penalties are calculated to increase employer fines where appropriate, there are still too many workplaces for any realistic inspection force to cover.

However, enforcement can be enhanced by leveraging the capacity and the presence of other public and private public health auditing and/or inspectional services. Whether it's the US Department of Agriculture's (USDA) Food Safety and Inspection Service inspectors in the case of meat and poultry facilities, the Joint Commission on Accreditation of Healthcare Organizations' (Joint Commission) surveyors in the case of health care facilities, or the EPA Risk Management Program auditors in the case of establishments that have large volumes of toxic chemicals on site, the presence of services like these in a broad range of other agencies provides an opportunity to integrate occupational health into existing activities with a public health focus.

Many workplaces targeted by current environmental/public health inspectional and auditing programs are reached only infrequently by OSHA. Thus, leveraging the capacity of existing inspectional and auditing programs provides the opportunity for OSHA to ensure that more facilities are complying with its regulations. As the USDA's, the Joint Commission's and EPA's inspectors, surveyors, and auditors are already skilled in public health protections, probably only minor cross-training on issues specific to occupational health is needed to allow these programs to serve as additional sets of eyes for OSHA. Further, a more coordinated approach that engages teams of inspectors, or calls for whole-facility multi-media inspections, would help ensure that hazards are not shifted from inside the plant to outside and could focus on facility-level prevention opportunities. Finally, many states have pollution prevention and manufacturing extension offices that could provide engineering support for workplace and facility design in the course of inspections.

While only OSHA has the jurisdiction to issue citations for violations, these additional inspectional/auditing services can serve as important

referral sources for OSHA inspections. The USDA already has a memorandum of understanding (MOU) with OSHA to carry out these services.<sup>4</sup> Yet more effort is needed to realize the potential of this MOU and to establish similar MOUs with other public and private agencies.



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### **3. Expand occupational safety and health surveillance and enable rapid interventions when hazards are detected.**

Accurate, comprehensive, and informative surveillance data are essential for ensuring that resources to protect the safety and health of workers are targeting the most at-risk workers and for evaluating whether hazard prevention policies and programs are effective. As discussed in the majority of case studies, statistics on injuries and illness collected by the Bureau of Labor Statistics (BLS) woefully undercount injuries and illnesses that are occurring in workplaces.<sup>5,6</sup>

OSHA is currently pursuing two important efforts to improve surveillance data: (1) its Recordkeeping National Emphasis Program will presumably help rectify deliberate under-reporting by certain employers; and (2) current efforts to include musculoskeletal disorders as a reportable illness category will help reveal the true extent of these injuries. Yet beyond these activities, major surveillance gaps will still remain—gaps that severely impede not only OSHA's regulatory enforcement

***“I played by the rules. I worked to support my family. This unregulated industry virtually destroyed my life. Don’t let it destroy the lives of others. These chemicals that are used on food in large scale production must be tested and proper instructions and labeling supplied with their sale.”***

— Eric Peoples, microwave popcorn plant worker who was diagnosed with a form of fixed, obstructive lung disease resulting from workplace exposure to artificial butter flavoring chemicals

and compliance assistance activities, but also non-regulatory hazard and disease prevention efforts by NIOSH and state occupational health programs. BLS data should be supplemented by new annual national surveillance surveys or similar tools to capture data that current BLS surveillance tools were not designed to collect. Additional surveillance data collection efforts should include illnesses with long latencies such as cancer, additional injury and illness types not specified on data collection forms used by BLS (OSHA 300 logs), and the experience of workers employed by some small businesses.

Also of crucial importance is the need to expand the capacity of state and federal occupational health programs to intervene rapidly to prevent additional cases of injury or illness when hazards are identified. According to a survey by the Council of State and Territorial Epidemiologists, 34 of 50 US states have minimal to no surveillance or epidemiology capacity in occupational health.<sup>7</sup> And those that have the staff capacity have neither the real-time injury or illness data nor hazard surveillance tools to support occupational health officials in meeting their responsibility to identify and warn workers who are at risk, or to identify early-stage cases of disease.

Hazard surveillance tools should include a central repository of chemical use information. This need was clearly revealed in the diacetyl case study: the California Department of Health Services’ Hazard Evaluation System and Information Services (HESIS) unit could not appropriately warn workers of hazards associated with diacetyl, as it had no way of finding out which workplaces used butter flavorings.<sup>8</sup>

#### **4. Implement comprehensive chemicals policy reform, including both occupational and environmental hazards.**

At present, the United States has roughly 15 federal agencies and many more state agencies responsible for chemicals management. As seen in the popcorn workers’ lung and methylene chloride case studies, this disjointed collection of overlapping jurisdictions for managing chemicals—a system that tends to treat chemical hazards as “safe until proven hazardous”—is harming workers. This harm was poignantly described by Eric Peoples, a popcorn plant worker, “I played by the rules. I worked to support my family. This unregulated industry virtually destroyed my life. Don’t let it destroy the lives of others. These chemicals that are used on food in large scale production must be tested and proper instructions and labeling supplied with their sale.”<sup>9</sup> Nor is our chemicals management system protecting the general public or the environment.

A comprehensive approach to regulating workers’ exposure to chemicals needs to move beyond OSHA’s risk-based health standards—a substance-by-substance process that every OSHA administrator has recognized cannot keep pace with the rapid pace of technological change in the American workplace. Moreover, the risk of unintended consequences of regulating one chemical at a time was clearly revealed in the methylene chloride case study—some employers responded to the methylene chloride standard by switching to 1-bromopropane, an unregulated chemical that testing has now revealed may be four times more potent in causing cancer than methylene chloride.<sup>10</sup>

An important model for the chemicals management system needed in the United States is the European Union’s policy called REACH—Registration, Evaluation, and Authorization of Chemicals. This policy requires that manufacturers and importers of chemicals assess chemical hazards, communicate these hazards through supply chains, and ensure safe use of chemicals rather than placing the burden on government to show that each substance is harmful before action can be taken to regulate it. Some key components are:

- Manufacturers must provide hazard, exposure, and use data on all chemicals, not only new ones, before they can be used in commerce.
- Companies have the responsibility to provide information on health and environmental effects of the chemicals they use.
- Hazard information must be communicated both up and down the supply chain.
- Substances of “very high concern” need explicit authorization for use, and a plan to substitute safer alternatives.

While efforts are underway to reform the 30-year-old US Toxic Substances Control Act, many US companies already recognize the need to understand what chemicals are in their products and to undertake necessary testing and evaluation. Several US states are also undertaking broad chemicals reforms to rapidly prioritize chemicals into higher and lower hazard categories and require safer alternatives to chemicals of concern. Proposed regulations in California, for example, will require the state to prioritize chemicals and products of concern and require that retailers and distributors evaluate safer alternatives to those substances. But none of these developments, including REACH, includes the full range of components of a Comprehensive Chemicals Policy that considers all chemicals, across all uses and jurisdictions, with the goal of promoting safer chemicals and not simply controlling the hazardous ones.

#### **5. Promote “Prevention through Design” (PtD) to make jobs, products, and materials inherently safe.**

For decades, chemists, engineers, and architects designed the materials and production processes that fuel our economy with little or no regard for

the safety and health of workers. From avoidable falls among construction workers, preventable back injuries to health care workers, and neuropathy among workers exposed to 1-bromopropane, the case studies again and again reveal entirely



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avoidable harms if only our chemicals, production processes, and technologies were *designed* differently. Across the life cycle—from manufacture and construction to operation, maintenance, and disposal—fatalities, illnesses, and injuries result from hazards inherent in the way things were designed. Given that these problematic materials and processes were designed and created by humans, solutions can be also—and one of the best ways to protect workers is to design out those hazards.

NIOSH has a dedicated Prevention through Design (PtD) initiative whose mission is to “reduce the risk of occupational injury and illness by integrating decisions affecting safety and health in all stages of the design process.” With current interest in greening the economy and in getting people back to work, successful implementation of PtD concepts holds great promise for breaking free of the false dichotomy of safety versus profit—it doesn’t have to be a trade-off. Tools to implement PtD, including alternatives assessment and toxics use reduction planning, can be integrated into decision-making by both businesses and regulatory agencies to reduce hazards at their sources

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*“It’s sad to not know who to complain to, because even the doctors and nurses are on the company’s side.”*

— an anonymous Nebraska meat packing worker

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rather than simply managing downstream risks. PtD application at the firm level can be combined with coordinated federal agency research to identify design-oriented solutions for workplace hazards that optimize worker and environmental health. The training of chemists, engineers, designers, and business and finance professionals could include PtD as well. Federal research programs could be used to stimulate innovative research on the most cost-effective ways to design out hazards throughout the economy.

**6. Expand labor/migrant labor safety and health protections. Support immigrant worker centers to develop expertise in assisting workers.**

The globalization of systems of production has two distinct aspects. The export of hazardous industries is perhaps the better understood aspect. But we can see that when a hazardous and exhausting job *can't* be exported—construction, janitorial services, personal care, health care—these trades are increasingly carried out by immigrants, which creates special challenges for those who try to help them protect themselves.

New immigrant workers experience communication, legal, and cultural barriers to understanding and exercising their workplace rights. In some sectors, trade unions have been successful at organizing these marginalized workers, and this can be an important step in providing them with basic protections. Yet in many situations, unionization has been very difficult. As described in the construction case study, only 11 percent of Hispanic construction workers belong to a union. They also suffer far more fatal and non-fatal injuries and are 48 percent less likely to receive payment for medical costs from workers' compensation than their non-Hispanic white co-workers.<sup>12</sup> Similar needs were also revealed in the case study of meat and

poultry workers. For example, less than half (44 percent) of the predominantly immigrant workforce on Nebraska's meatpacking disassembly lines remembered receiving information about workers' compensation, according to a survey by Nebraska Appleseed.<sup>11</sup> As described by one meatpacking employee, these populations often feel that their employer's human resources and medical staff only have the company's interest in mind, "It's sad to not know who to complain to, because even the doctors and nurses are on the company's side."<sup>11</sup>

Safety and health training, information, and other support can be offered through immigrant worker centers and other community initiatives to reach out to these populations. And OSHA could strengthen its ability to communicate with immigrant workers and their communities through outreach activities and additional resources devoted to working with non-English speakers. However, information alone will not be sufficient to protect workers. It must be coupled with policies and enforcement and compliance programs that ensure that the most vulnerable workers are protected from workplace hazards (considering the cumulative impacts of workplace and community hazards and stressors). By protecting those most vulnerable, all workers will be better protected.

**7. Strengthen occupational and environmental health expertise and related clinical initiatives that are created by health care reform legislation.**

Health care reform debates have opened many opportunities to improve health care focused on the hazards of work. If it were not for astute physicians, such as Dr. Alan Parinet in Kansas City and Dr. Phil Harber in Los Angeles, who diagnosed the first cases of lung disease in workers exposed to butter flavoring chemicals, the epidemic would have lasted longer and more workers and consumers would have been sickened.

When physicians are trained in occupational health and when effective occupational health surveillance systems are in place, workers' lives are better protected. Yet the Institute of Medicine has declared that there is a "critical shortage" of specialty-trained occupational and environmental physicians in communities, in academic medical centers, and in public health and related agencies.<sup>13</sup> Public health and medical curricula should

require a minimum level of competence in recognizing occupational injury and illness to enhance the capacity of future professionals. Some states, such as Massachusetts, are implementing programs to integrate occupational health into existing public health, clinical care, and worksite wellness programs.<sup>14</sup> Focusing these initiatives in community health centers makes sense because the low-income patients who use these centers often find themselves in the most hazardous jobs.

### Taking the next steps

The challenges of protecting workers' safety and health are great, but the opportunities for broad solutions that can improve the health of workers, communities, and the environment while stimulating innovation are even greater. The case studies in this report explore multiple overlapping factors that lead to workplace injury and illness. Using these case studies, we have identified concrete steps for systems-level changes that can prevent injury and illness. None of the proposed recommendations is sufficient in and of itself. It will take multiple efforts with the engagement of a



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wide range of parties to effect fundamental change. Resources for participating in this ongoing dialog are available at our website: [www.sustainableproduction.org](http://www.sustainableproduction.org), along with the six case studies and resources for going deeper into each of these topics.

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#### About the Lowell Center

The Lowell Center for Sustainable Production is a research center of the University of Massachusetts Lowell working to build healthy work environments, thriving communities, and viable businesses that support a more sustainable world. We do this by working collaboratively with citizens' groups, workers, businesses, and government agencies.

#### Acknowledgments

We are deeply grateful to Earl Dotter for permitting us to use his breathtaking photographs of workers. Earl "seeks out those who are taking steps to improve their lives at work, and uses the camera to engage them—giving visual testimony to their achievements. The images that result tell of the satisfactions of their work as well as its many challenges to their safety and health." Please visit Earl's website to view additional images and to learn how to purchase his photos ([www.earldotter.com](http://www.earldotter.com)).

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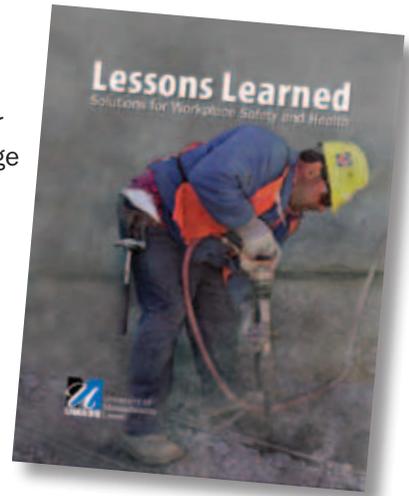
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Every day, 14 workers die on the job, and each year more than four million are seriously injured or sickened by exposures to toxic agents. Real change in the nation's approach to workplace safety and health is desperately needed.

This case study is one in a series of six featured in the full report, *Lessons Learned: Solutions for Workplace Safety and Health*. The series includes:

- **Case Study 1**  
Floor finishers, lacquer sealers, and fires: safer product alternatives are the solution  
[www.sustainableproduction.org/lessons/case1](http://www.sustainableproduction.org/lessons/case1)
- **Case Study 2**  
When my job breaks my back: shouldering the burden of work-related musculoskeletal disorders  
[www.sustainableproduction.org/lessons/case2](http://www.sustainableproduction.org/lessons/case2)
- **Case Study 3**  
The poison that smells like butter: diacetyl and popcorn workers' lung disease  
[www.sustainableproduction.org/lessons/case3](http://www.sustainableproduction.org/lessons/case3)
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Injuries are not accidents: construction will be safe when it's designed to be safe  
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Through these case studies, the report identifies strategies for real change—approaches that can protect workers while stimulating innovation in safer forms of production that can also protect the communities in which we all live. Copies of the full report, executive summary, as well as the individual case studies can be downloaded from the Lowell Center for Sustainable Production's website, by clicking on the links above.



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