

After shipping, pallets pose big risk to public, cause many accidents, injuries

December 2 2020, by Jeff Mulhollem



With nearly 2 billion wooden pallets in use at any given time in the country, they are indispensable components of domestic supply chains. But they present unique hazards when used by retailers and homeowners for unintended purposes, according to researchers. Credit: Charles Ray/Penn State

Shipping pallets—often used as display platforms in retail settings or seen as raw material for household projects—were responsible for sending more than 30,000 people to the emergency rooms of U.S.

hospitals over a recent five-year period, according to a new study.

With approximately 400 million new wooden pallets produced in the United States every year, and nearly 2 billion in use at any given time in the country, pallets are indispensable components of domestic supply chains. But they present unique hazards when used by retailers and homeowners for unintended purposes, pointed out researcher Judd Michael, Penn State Nationwide Insurance Professor of Agricultural Safety and Health.

The first-ever investigation of non-[occupational injuries](#) that occur due to unintentional contact with pallets yielded startling statistics, Michael noted. From Jan. 1, 2014, to Dec. 31, 2018, there were an estimated 30,493 people who visited hospital emergency rooms for pallet-related injuries.

To reach their conclusions, researchers combed through data in the U.S. Consumer Product Safety Commission's National Electronic Injury Surveillance System. That database is used for safety-related research, and similar studies using its data have examined injuries from products ranging from bunk beds to trampolines.

The National Electronic Injury Surveillance System collects emergency department data from approximately 100 hospitals selected as a probability sample for all of the more than 5,000 U.S. hospitals with emergency departments. In addition to patient demographics, incident date, emergency room diagnosis, [injury](#) location and patient disposition, the system contains brief narratives describing incident scenarios. Analysts then extrapolate data from the sample to estimate injuries across the entire U.S.

According to the data, people ages 35-44 were most likely to be injured—5,481 over the study years. But about 3,000 children and youth

under 18 years of age were injured, and more than 4,000 people 65 years of age or older suffered injuries. The elderly, especially, were likely to suffer injuries from tripping over pallets and falling, Michael noted.

The lower extremities were the most often injured body parts in pallet-related accidents. The overall severity of injuries is likely low given the 97% discharge rate for pallet-related injuries. However, a small percentage were severe enough to require hospitalization or transfer, and there was a single fatality during this time period.



A worker recycling pallets. Keeping pallets out of the hands of homeowners looking for materials to accomplish do-it-yourself projects or firewood is problematic, researchers suggest, because hundreds of thousands of damaged pallets are discarded from supply chains each year. Credit: Charles Ray/Penn State

Significantly, Michael said, an estimated 3,964 persons—accounting for approximately 14% of all pallet-related injuries—were treated for injuries incurred while at a retail establishment. He expects the findings, recently published in the *Journal of Safety Research*, to be of great interest to operators of grocery stores, warehouse chains and "big-box" retailers, where pallets are often used in retail space as platforms to display merchandise.

"Based on our findings, the first obvious practical application of these results would be to eliminate pallets from being used in consumer-facing retail locations where unintentional contact could occur," he said.

"Retailers can cover all floor-level pallets with a brightly colored material to make them more visible, and never leave unused pallets laying on floors."

Keeping pallets out of the hands of homeowners looking for materials to accomplish do-it-yourself projects is more problematic, Michael suggested. It would require preventing used pallets from leaking out of supply chains from manufacturer to retailer and into the possession of individuals.

"This strategy, however, would be effectively impossible given the near-ubiquitous availability of millions of used pallets that have little or no value to businesses and are discarded," he said. "Given the difficulty of preventing people from obtaining used pallets, the most appropriate preventative measures would seemingly relate to education on the dangers of used pallets."

Social media could be an effective tool to warn homeowners and counteract the increasing use of pallets for unintended residential use, Michael said. The prevalence of warm-weather injuries implies communications should be targeted during those months.

"The immense number of pallets allows for broken or beaten-up pallets to be lost from the system and grabbed by homeowners for DIY projects," he said. "Or they break up pallets for firewood or stack firewood on them. They're not careful and they get hurt."

Michael is often asked why he focused on the risks of pallets. It was a natural progression, he believes.

"Broadly speaking, in the College of Agricultural Sciences we have worked with industrial packaging for 10 to 15 years, and we've become experts in the area," he said. "We've done research on other aspects of pallet use, so this seemed like a logical extension as I have begun to work more on the safety side."

More information: Judd H. Michael et al, Non-occupational injuries caused by transport packaging: Residential and retail hazards, *Journal of Safety Research* (2020). [DOI: 10.1016/j.jsr.2020.10.003](https://doi.org/10.1016/j.jsr.2020.10.003)

Provided by Pennsylvania State University

Citation: After shipping, pallets pose big risk to public, cause many accidents, injuries (2020, December 2) retrieved 20 July 2024 from <https://medicalxpress.com/news/2020-12-shipping-pallets-pose-big-accidents.html>

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