

Episode Title: How Farmers Get Hurt: Insights from Iowa's Trauma Registry

Topic: Injury Data Among Iowa Farmers

Summary: Jon Davis, a researcher and assistant professor at the University of Iowa's College of Public Health has released an updated analysis of more than 3,700 farm-related injuries treated in Iowa hospitals between 2017 and 2023, using the state's uniquely detailed trauma registry. Because Iowa is one of the few states that flags farm-related injuries in hospital data, the report provides a rare, accurate look at how farmers are getting hurt on the job. Davis found the patterns in his most recent report of injury trends remarkably consistent with earlier years, highlighting long-standing hazards that continue to challenge farm safety. Although the data are specific to Iowa, Davis believes these trends likely reflect injury risks in neighboring states with similar livestock and row-crop operations, underscoring the importance of better data systems and targeted prevention efforts to keep farmers safe.

Expert: Jon Davis and Renee Anthony

Episode Quote:

"In order to understand trends, you need a good set of data to identify that. I think they're recognizing that limitation of current hospital records where it's very difficult to tell if a fall or a motor vehicle crash was related to farm-related activity if you don't have that farm-related indicator abstracted by the hospital themselves."

– Jon Davis, Assistant Professor at the University of Iowa College of Public Health

Transcript

00:10 E Ritchie

Welcome to the *FarmSafe* Podcast brought to you by the Great Plains Center for Agricultural Health. In the blink of an eye, an injury can change your life and your farm forever. During each episode, we share first-hand stories and real-life tips for making safer and healthier decisions while on the farm. Jon Davis, a researcher and assistant professor at the University of Iowa's College of Public Health, has released an updated analysis of more than 3,700 farm-related injuries treated in Iowa hospitals between 2017 and 2023, using the state's uniquely detailed trauma registry. Because Iowa is one of the few states that flags farm-related injuries in hospital data, the report provides a rare, accurate look at how farmers are getting hurt on the job.

Iowa's state-mandated trauma registry includes a unique indicator that flags when an injury is farm-related— an advantage that most other states lack. This system enables researchers to track serious agricultural injuries far more accurately than national sources such as BLS injury statistics or workers' compensation records, which tend to under-represent small farms and frequently omit key occupational details. Because many injured farmers, particularly owners and family members, are not covered by workers' compensation, hospital-based surveillance becomes essential for understanding the true scope of agricultural injuries. Today, we are joined by the Great Plains Center Director, Renee Anthony, and Jon Davis, who analyzed 3,753 farm-related injury cases from 2017–2023 using this enhanced dataset, building on an earlier report covering 2014–2017.

02:09 R Anthony

Hi, I'm Renee Anthony, Director of the Great Plains Center for Agricultural Health and faculty at the University of Iowa College of Public Health. So, I was involved in doing some of the trauma registry analysis last project period, but I'd like to introduce John, who just completed the new version. John?

J Davis

Hello, I'm John Davis, Assistant Professor of Occupational Environmental Health, also at the University of Iowa. I do a lot of work with injury data and surveillance and was excited to look at farm-related injuries. What kind of data sources are available to understand how workers are injured on the job? So, you can put worker injury data in basically two buckets. We have hospital records that give us information about when a patient's discharged, what were they seen for? What was the type of injury? How did that injury occur? Or

we also have work-related injury records. The nationally represented version of that is the Bureau of Labor Statistics Survey of Occupational Injury and Illness, which takes all of the different injuries that occur at a work site.

If it's deemed a reportable injury, representative sample of that ends up in that Bureau of Labor Statistics data so we can get a sense of what's the burden of injury across different occupations and industries.

03:35 R Anthony

Yeah, what's really interesting is that with farming, it's really hard to get a good national snapshot from the BLS because they tend to focus more on larger farms. So, if you're smaller farm operation, right, you're not necessarily being asked to submit information because you don't have a lot of hours. So, it becomes really hard to tease out different types of farming operations with that BLS data, although they try and do estimates from the data that they have. Some of our researchers here in the center have in the past looked at workers' compensation. So, if you're a big enough farm, there are records at the state level on how many claims have been made from farming operations.

And so, we've looked at those sorts of injury records and found that they're very different types of injuries than what we see in the trauma registry. The trauma registry, which is what Jon has looked at, is looking at for somebody that goes to the hospital, to the emergency room for care, right? It's pretty traumatic injury. But in the worker's comp, those have cases that may be less of an acute hazard and more of a chronic hazard. So, somebody has low back pain. That may not be an injury that would send somebody to the emergency room, but for workers' compensation, right, it's a different type of outcome. And when we're looking at outcomes and databases, we've got to really focus in on what is the outcome and what kind of data go into those databases for workers.

E Ritchie

So, if it's a smaller farm and they go to the hospital, the emergency room, for some type of injury, let's say they lost a finger in some type of equipment. Is that captured because it's a smaller farm? Like, do they ask how the injury happened and then does that get recorded?

05:33 J Davis

In the scenario that you describe, if they themselves are not covered by workers' compensation insurance, which if I'm the owner of a farm and get injured, or if a family member of that farm owner gets injured, they're not necessarily going to be covered under workers' compensation insurance. So, they're not going to end up in that data. For the hospital discharge data, they're going to show up, they're going to get treated for this amputation or injury.

And what's going to be missed there is if the mechanism isn't specifically tied to an exposure on the farm, such as contact with a type of agricultural machinery, we're going to have a lot of trouble identifying that as a farm-related injury from the existing hospital data records. That's one of the challenges of counting farm-related injuries. We're very fortunate here to have the trauma-related data.

And by law, when someone is seen in a hospital for an injury, if it's farm-related, that farm injury gets reported. And in our trauma registry data, we have an indicator of something being farm related. And that's generally an injury that occurs during the creation of farm goods or the transportation of farm goods. And it will get indicated in that data, as opposed to us having to sift out very specific mechanisms of injury. And that is something that is very specific to Iowa and that we're very fortunate to have.

07:02 R Anthony

Iowa is unique in that we have a way of collecting this. I talked with folks that are managing databases across the country and occupation is often not even captured in some of these databases. Iowa definitely has a unique system that we hope other states would be able to adopt. We at the Great Plains Center are using what we're finding with Iowa's trauma registry and kind of making a little leap of faith that we have similar rates of events happening in states that perform very similar activities that we have here in Iowa.

E Ritchie

Why is it that Iowa has adopted this, and other states haven't? Is there any reason for that?

J Davis

You know, I'm not sure of the historic political drive for this. It's a law passed in the mid-2000s, but I imagine related to our large farming population and the desire to keep farmers safe in Iowa. And in order to understand trends, you need a good set of data to identify that. So, I think they're recognizing that limitation of current hospital records where it's very difficult to tell if a fall or a motor vehicle crash was related to farm-related activity if you don't have that farm-related indicator abstracted by the hospital themselves.

08:24 E Ritchie

We see that a report was generated from the registry data in 2014 to 2017. You have just finished another report using 2017 to 2023. How many cases did you find?

J Davis

In my analysis, I found 3,753 farm-related injuries. Among those are multiple mechanisms and results of injuries, but over 3,700 unique farm-related injuries over that time period. And what types of injuries did Iowa farmers get treatment for in this period?

Predominantly what we see is fractures followed by open wounds. There's also superficial injuries and internal organ injuries, but over around half are attributed to fractures.

09:16 R Anthony

Which makes sense because they're going to get emergency care. So, if somebody's got an open wound and needs some stitches or has a potential broken bone, then they're going to seek medical care. So superficial injuries, Jon, those are things like bruises, contusions, that sort of stuff.

J Davis

Exactly. And those often get identified as occurring with a fracture. All of those superficial injuries aren't occurring by themselves. They're often accompanying a more serious injury.

09:47 E Ritchie

What are the major trends and what you found that is causing these injuries?

J Davis

The most common mechanism of injury is falls, which is not unique to just farms. The falls are a very common injury among adult workers. And that was the primary mechanism by which someone is injured. There's also contact with animals and contact with machinery, which are very specific farm related exposures. That made up many of the injuries, mostly falls are things that are driving seeking care for an injury.

10:25 E Ritchie

Are there any other interesting findings that could help us better understand how our farmers are getting hurt?

J Davis

Another injury I haven't talked about yet is transportation related injuries that were also a fairly common reason that people were seeking treatment for injury. And about a third of those were related to agricultural vehicles or ATVs. So, this contact and use of these equipment are particularly unique to farmers, and we end up seeing that in the data as it becomes a driver for the reason that they're seeking treatment for injuries. And what age group was that most relevant to? So, for transportation, that made up a greater proportion of the more younger middle-aged adults, 25 to 44. There was a great proportion of their injuries related to transportation.

Again, these younger workers are less likely to seek care for a fall and a fall might have a less worse outcome than an older adult fall. So that's one potential explanation. Another explanation could be increased exposure to driving these vehicles in younger age, but it is more that younger middle age group that had a greater proportion of those transportation related injuries.

11:44 E Ritchie

Do you see any interesting changes between the previous report and more recent cases?

J Davis

To me, it was more striking the consistency of the types of injuries and falls being a predominant driver of injuries in terms of how farmers are getting injured and what type of injuries those are resulting in. To me seems fairly consistent between the two reports, which in a way is signals that these challenges have existed for a while, and we have not done a good job of addressing these sources of injuries for farmers.

12:24 R Anthony

Between the two reports that were generated, there was a change in the coding system, right? So, we actually have a little bit more detail about the injuries now than we did when we had the ICD-9 code. The ICD-10, you know, gives us a little bit more information than what we had in the past. The good news is we've got improved information. But with falls, I always find it really interesting because everybody thinks of a big traumatic fall from an elevation, but we have about 30% of these falls that are sending people to the hospital on the farm are from falling on the same level. We're not falling off of big equipment. We're tripping on the ground and tripping over our feet or tripping over stuff that we're walking onto. The report's really interesting. We have imagined in our mind what we mean by fall, but there are so many sources of falls on the farm. There's not a lot of resources that we've seen for farmers on this topic.

And so, we've been working with folks to say, what about falls? Can we help improve conditions? And there's a few people falling on stairs and ice, right? We would expect that in Iowa, but ladders account for about 13% of the falls. So, immediately I think somebody's falling off a ladder, but then we have people falling from another level or from same level. There's just a variety of ways that people can get injured for a fall that next level is to try and figure out how do we make some interventions on this wide variety of things that are hurting farmers.

One of the other things that was interesting was the contact with animals, Jon, what kind of injuries are we seeing with those?

14:03 J Davis

Yeah so, horses and cow bites are really a prominent way that farmers are getting injured by their animals or contact with those animals. The commodity that a farmer's using or the type of farming that's being done is going to be a driver of why they show up for care. But we do see a lot of animal-related injuries. It's something that people feel really comfortable with their animals, something that they may have been doing for years without an injury. But we do see that showing up in our data.

14:36 R Anthony

Yeah, the good news is contact with pigs is counting for less than 4% of all these, we'll call natural or environmental injuries. So, it's, it's really those big cows cause they, they weigh a lot, and they move around a lot.

J Davis

Yeah, exactly. Like a kick or knocking you down. Those are the different ways that it can interact with you to cause an injury.

R Anthony

Yeah. And again, the outcomes of those are predominated by fractures.

J Davis

Mhm.

E Ritchie

And how do you think Iowa injuries relate to farmers in surrounding states?

15:07 J Davis

We don't really know because we have like this indicator that's very specific to our Iowa systems based on other surveys of injury and other hospital discharge records. I would assume that what we're finding here would be mostly generalizable to the surrounding states. It's definitely gonna be driven by the commodities being farmed.

But overall, I think that if we had this indicator in other states, we would seem roughly similar in numbers, but it's going to vary based on the type of animals people are raising or the type of equipment that they're using for their specific crops that are dominant in their state.

15:46 R Anthony

We have a lot of row crops here in Iowa, corn and soy. That's preponderance of what our fields are used for. For other states that have those types of operations, I think the trends will be similar. Where there's a lot more hand harvesting and using other kinds of equipment, then we're going to probably see different trends. But for people that are doing the similar livestock production and big row crop production, we would assume that it's similar risk factors. So, we would see probably similar outcomes for those types of operations.

E Ritchie

So, what is the future with this, and do you have anything ongoing that we should look forward to?

J Davis

Yes, I'm collaborating with a few different students looking at specific issues related to ag transportation or trends in agricultural injuries over the years. So, hoping to work with a few different students to get some good research out there about farm-related injuries.

16:47 R Anthony

Well, I do want to thank John for his work on this. It always takes a while to get your hands on data and then to process it in a way that really helps folks. So, thank you for doing that, John, and going back through time. The time period of this includes that COVID year. So, it's kind of an interesting data set, and we do look forward to seeing if we can make any impacts to reduce the, especially falls, you know, what is it that we can do to reduce the fall injuries on farms? Cause that is fairly persistent and not a lot of resources for farmers. So, thanks for identifying that we still have work to do in that area.

J Davis

And it's wonderful to be able to work on this in Iowa because of our rich data that we have available to track this. It's a much harder question in other states, I think.

17:43 E Ritchie

The Iowa Trauma Registry identified four key areas where farm injuries are sending us to the emergency room: Falls, vehicles, machine interactions, and contacts with animals, particularly cows. We ask you to take an inventory of activities that put you at risk of these four risk factors on your farm. How can you share this information and remind your family and teams about hazards during the upcoming farming season.

We are sharing resources, including the summary report of these injury trends. Visit the GPCAH resources by topics page to get posters and other types of materials to use to discuss these critical hazards that are sending our farmers to the emergency room.

E Ritchie

Listen in on the *FarmSafe* Podcast to join in on the conversation about keeping safe on the farm.

We want to hear from you. Share your stories about health and safety issues on the farm, about injuries that made you change the way you work, or about the ways you keep yourself and others safe on your farm. Also let us know if there's questions you have or topics that you want to hear about on the air. You can visit our website, gpcah.org or email us.

Original music for the *FarmSafe* Podcast was written and performed by Ben Schmidt. This work was funded by the Centers for Disease Control and Prevention as part of the National Institute for Occupational Safety and Health's Great Plains Center for Agricultural Health.

Episode Resources

- [Injury Trends for Great Plains Farm Workers](#), GPCAH, Main Webpage
- [Iowa Trauma Registry Ag Surveillance 2017-2023 Report](#), GPCAH
- [Iowa Trauma Registry Ag Surveillance 2017-2023 Report](#), GPCAH
- [2017-2023 Injury Data: Have the Conversation About Injuries on the Farm](#), GPCAH, 11×17 Poster
- [2017-2023 Injury Data: Have the Conversation About Injuries on the Farm](#), GPCAH, 8.5×11 Flyer

Photo

