



## Table of Contents

Message From the Director3
Testimonials4
Emergency Responders Train for Farm Rescues5
Filling the Gaps of Agricultural Injury Data6
Farm Medicine Works to Find Mental Health Solutions7

Jerry Meissner Remembered11
Researchers Find Farm Programs Don't Talk About Child Care12
The Farm Kid Paradox Project Focuses On Benefits And Dangers For Children Who
Grow Up On Farms13
Research Project Tracks Childhood Ag Injuries In Region14
Projects15

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### Mission Statement -

"With the ultimate goal of improving human health, well-being and safety of rural and agricultural communities, the National Farm Medcine Center acts as a national resource by conducting high quality research, developing and delivering health and safety information, exploring innovative intervention models, and leading initiatives and networks."

Message from the Director, Casper Bendixsen, Ph. O.

The passage of time is remarkable when it speaks to the continued importance of missions and the people who successfully pursue them. The health and wellbeing of rural communities, including farmers, their workers, and their families, has been a central mission to the Marshfield Clinic Health System since its inception over a century ago. As the first formal research center within Marshfield Clinic Research Institute, the National Farm Medicine

Center is a part of that proud tradition, especially as we have grown and formalized over the last 40 years. We observed our ruby anniversary in 2021, and this suits our place amongst the crown jewels of the Health System. For me, 2021 was very much about farm



children, rural firefighters, farmer mental health, and improving injury data. It was also a year of gratefulness as we benefited from vaccines and were able to resume some of our fieldwork and face-to-face activities. Among them, our cherished Auction of Champions was back in proud form.

It's easy to sometimes only see the successes and challenges that are immediately around us. Please enjoy this

special 40th Anniversary issue of our Year-in-Review as an opportunity to think about Farm Medicine as a unique place where the people and their specialties may change over time, but they always stay true to the mission.

Publicationc

Peer review is the foundation of scientific activities. The peer-review process subjects an author's work to the scrutiny of other experts in the field, thus encouraging authors to produce high-quality research that will advance the field. During 2021, Farm Medicine researchers published 23 peer-reviewed articles. marshfieldre-search.org/nfmc/publications

Happy Anniversary National Farm Medicine Center



Becky Wirkus Agricultural Instructor

Congratulations on 40 years of working to improve rural health and safety! Central Wisconsin is a hub of agricultural activity and having the center located within the Marshfield Clinic enables much of the greater Midwest region of the nation to have their safety needs serviced by this outstanding organization. As an agricultural instructor, safety in careers is always at the forefront of our instruction. We want our highly skilled and trained employees to enjoy a long and healthy career in the agricultural field that they are passionate about. From accident prevention, to agricultural mental health, to trauma treatment, the partnership of these two facilities benefits a multitude of individuals, groups, and organizations throughout the year. Best wishes as you take on the challenges of the next 40 years. >>



Ralph Bredl Dairy Producer

**C** As a young Auburndale farm boy I have vivid memories of following my father, who would later be diagnosed with Farmer's Lung Disease, as he and the prestigious yet disarming Dr. Dean Emanuel walked the farm and discussed what might be the causative agent of my father's recurring ailment. At that moment, this farm boy had no idea he was seeing the foundations of the National Farm Medicine Center being laid. This experience set the stage for a lifelong involvement in, and deep appreciation for, the caring research being conducted 10 miles away at NMFC. It's a long and storied history of a volume of work which continues to positively impact countless lives. **>>** 



### Dr. Sue Turney CEO, Marshfield Clinic Health System

•• National Farm Medicine Center is truly the embodiment of our Health System's values in action. With an almost entirely rural service area, agriculture is an enormous part of the fabric of our communities and their well-being. We've always tried to innovate to address the unique needs of our patients and communities, and NFMC is a great example. NFMC does essential, groundbreaking work in protecting and educating the public, and in particular, working to make farmers and farm workers safer. I'm so proud of the legacy NFMC has established over the last 40 years, and I know they will be a big part of our vision to define the future of health care.



Jerry Minor Fire Chief

<sup>C</sup> The word partnership is a buzzword today, but with the Farm Medicine Center it's not just words, the center has become a true partner with the fire system. We're fortunate to have them in our backyard. That's allowed us to interact so closely with the center for four decades.

### **Emergency Responders Train for Farm Rescues**

Forty years after organizing its first farm rescue education event, the National Farm Medicine Center presented the Agricultural Rescue Training Scene Management program, Oct. 22-23, at Heiman Holsteins and Heeg Farms, Inc., just outside Marshfield. More than 70 participants from 29 departments across Wisconsin participated in handson rescue scenarios involving tractor overturns, grain bins, equipment extrication and more. Training partners included Pittsville Fire and Life Link III Air Medical Transport.

The training program's revival was made possible thanks to \$53,000 pledged during the Fund-a-Need portion of the 2019 Auction of Champions. In addition, numerous local businesses and individuals provided equipment and/ or support at very little or no cost. Pittsville Fire Chief Jerry Minor extended a special thank you to the Central Wood Fire and Rescue Services Association member departments who provided instructional staff, tools, equipment and expertise. Fire departments that sent three or more personnel to the training received a free, four-gas monitor with support from the Mike Biadasz Farm Safety and Education Memorial Fund. The fund honors the memory of Mike Biadasz, 29, of Amherst, Wis., who died in August 2016 when he was overcome by hydrogen sulfide gas on his family's beef cattle farm.

"Rescue operations on farms tend to be low frequency/ high risk, meaning that they may not happen as often as car wrecks but, when they do happen, they're often very severe because of the nature of the occupational environment on farms," said Casper Bendixsen Ph.D., director of Farm Medicine. "It's something that you have to train for because you don't have a lot of practice with it in daily rescues."

Trainings are planned to take place annually for the next four years.



### Dairy Farmer, Firefighter Promote Vaccine

Farmers and firefighters are among respected voices who can be leaders in encouraging COVID vaccination in rural communities. Farm Medicine worked with Maple Ridge Dairy owner Brian Forrest, a member of the Research Institute's Oversight Board, and Pittsville Fire Chief Jerry Minor to produce videos promoting vaccinations.



National Children's Center Turns 25

The National Children's Center for Rural and Agricultural Health and Safety, the largest program within Farm Medicine, marks 25 years in 2022. It is the only National Institute for Occupational Safety and Health-funded agricultural center focused on preventing traumatic injuries among children who work, live or play on farms. It was established in 1997 with a fiveyear competitive grant and has successfully renewed since.



**Brian Forrest** 

### Filling the Gaps of Agricultural Injury Data

Bryan Weichelt, PhD., and his injury surveillance colleagues are utilizing publicly-available data to present a more complete picture of agricultural injuries.

"We want to make sure that we're capturing all relevant injury data so that we can propose the best possible safety interventions to prevent injuries and protect the people who produce our foods, fuel, and fiber," said Weichelt, an associate research scientist with Farm Medicine and

AglnjuryNews.org project leader.

Weichelt and Research Specialist Rick Burke, M.P.H., co-authored a recently published paper proposing a more comprehensive surveillance and tracking system for agriculture-related fatalities in the United States.

The peer-reviewed article, published in the *Journal of Agromedicine*, says current surveillance methods miss entire categories of fatalities that occur during agricultural work or on production agriculture worksites, such as chil-

dren and non-working individuals. Also, many people working in production agriculture are primarily employed in other industries with agricultural work serving as a parttime or secondary form of employment. As a result, say Weichelt and co-authors, many fatalities occurring on farms and ranches are excluded from national datasets.

The Journal of Agromedicine article is titled, "What about the Rest of Them? Fatal Injuries Related to Production Agriculture Not Captured by the Bureau of Labor Statistics (BLS) Census of Fatal Occupational Injuries (CFOI)."

The authors included examples of reports from AgInjuryNews.org to show agriculture-related fatalities not captured by the CFOI count, such as victims of vehicle crashes on public roadways involving farm equipment, children killed in farm settings or on farm equipment and tractor operators killed on public roads because it wasn't known if they were working at the time of the crash. AgIn-

juryNews.org is the National Farm Medicine Center's growing online database of agricultural injury reports primarily compiled from online news media and obituaries.

with Even under-counting, the 2019 Census of Fatal Occupational Injuries still indicated workers in agriculture, forestry and fishing (AFF) sectors were seven times more likely to die on the job than non-AFF workers. Among youth workers ages

15 to 17, fatalities in agriculture accounted for 81 percent of all occupational fatalities.

The authors' recommendations align with an "urgent" need to improve the quality of mortality data and routine injury surveillance, the theme in a recent supplement from the American Journal of Public Health (AJPH), "When Dying Really Counts." In the supplement, AJPH editors argue that the, "consequences of inaccuracies in mortality data threaten the mission of public health."

### Emerging Issues Program -

In its first year as the NCCRAHS Emerging Issues Program four new projects were funded. Each project will address the wellbeing of migrant and seasonal farmworker children. We are happy to welcome Taylor J Arnold, M.A., Marysel Pagan Santana, Ph.D., Katherine Brieger, M.A., and Nicolas Lopez-Galves, Ph.D. Read more about the projects at https://marshfieldresearch.org/ nccrahs/EIP/fundedprojects.

### Journal of Agromedicine: A Leader in its Field –

The Journal of Agromedicine, edited by Farm Medicine since 2004, posted its highest-ever Impact Factor, 1.675, making it the world's No. 1 source of peer-reviewed agricultural safety and health information. Only journals of high scholarly quality are scored with an Impact Factor, which reflects how frequently their articles are cited in other scientific publications. The journal is edited by former Farm Medicine Center Director Matthew Keifer, M.D. (editor-in-chief); Barbara Lee, Ph.D. (senior associate editor); Scott Heiberger, M.S. (managing editor); and Marie Fleisner (editorial specialist).





### Farm Medicine Works to Find Mental Health Solutions



Rural mental health problems, including farmer suicide, are not new. As of 2018, suicide was the 10th leading cause of mortality in the United States. The National Farm Medicine

Center and the National Children's Center are conducting research and outreach to find solutions to support the mental health of farmers and their families.

Florence Becot, Ph.D., is working on a Health Resources and Services Administration-funded project with Yasamin Aftahi to develop a community health workers model to support the behavioral health needs of farm populations in four counties.

Josie Rudolphi, Ph.D., is entering the next phase of her Farm Adolescent and Mental Health (FAAM) project where she is doing a multi-modality, innovative series of studies to examine the mental health of youth on farms. By utilizing observational studies, her team has started a

### Children's Center \_\_\_\_ Co-Hosts Workshop with NIOSH Ag Centers

The National Children's Center co-hosted the Child Agricultural Safety and Health Workshop in September 2021 with 10 other agricultural centers funded by the National Institute for Occupational Safety and Health (NIOSH). More than 40 attendees representing Extension, health care, farm organizations, public health, academia and media participated in the interactive online workshop, held across three half-days and coinciding with National Farm Safety and Health Week. The purpose of the workshop was to assist participants in improving their knowledge and dissemination of child agricultural safety and health. Workshop materials were made available to all participants online in the workshop section of the Childhood Agricultural Safety Network Online Community (https://ChildAgSafety.org/), including recordings of the workshop sessions. Workshop topics included information on both non-working and working children, with an additional focus on special populations. Plans call for an in-person workshop in 2022.

series of surveys to identify the prevalence of common mental health conditions and stressors among farm adolescents and their parents to consider the association between family members.

Outreach Specialist Melissa Ploeckelman represented Farm Medicine in a coalition established by Wisconsin Farm Bureau to support a statewide #FarmNeighborsCare campaign. The campaign coalition hosted webinars, promoted resources on social media, and ran a campaign called "Heroes of Hope" to highlight rural heroes who instill hope in farmers and farm-related businesses with acts large and small. The #FarmNeighborsCare coalition includes producer groups, Extension, health care providers and other organizations.

Bryan Weichelt, Ph.D., and John Shutske, Ph.D., with support from Richard Burke, M.S., and Emily Redmond, identified suicides from 2017-2018 Wisconsin mortality data, including circumstances surrounding death and demographics, collected from death certificates. Their search criteria identified 164 potential farm-related fatalities from death certificate data; of these, 44 (26.8%) were suicides. This project underscored the importance of ongoing systematic surveillance of farm-related injuries, and was detailed in a peer-reviewed article https:// doi.org/10.3390/safety7030051.

### - Evaluation Metrics Established ·

Andrea Swenson, Ph.D., and the evaluation team provide infrastructure, personnel, and support to effectively monitor and evaluate National Children's Center activities. Evaluation metrics for each of the center's projects and center-wide metrics were established in 2021 – the first year of the center's five-year cycle. In addition to evaluation activities, Dr. Swenson's research continues to focus on the uniqueness of families in agricultural and rural communities.



# Milestones

Health issues unique to farmers, their families and employees provided the impetus for establishment of the National Farm Medicine Center in 1981. A group of physicians and other professional staff of Marshfield Clinic began discussing the establishment of an agricultural medicine center that would focus on health issues unique to farmers and their families who made up a large segment of the population in central Wisconsin, and who were also patients of Marshfield Clinic.

## 1991

Farmers Caps and Hats research leads to national media coverage for Marshfield Clinic.



### **1993**

Environmental Health Laboratory established, with research emphasis on pathogen virulence and infectious disease.

### **1997**

Designated by NIOŠH as National Children's Center for Rural and Agricultural Health and Safety, involving multiple projects and external collaborations.



## **1999**

Released North American Guidelines for Children's Agricultural Tasks (NAGCAT).

Health and Safety Guidelines for Children" published.



2004

Assumed editorship of

Journal of Agromedicine, a peer-reviewed journal

indexed by the National

2007

Facilitated

of industry-

Council of

establishment

driven Agricultural

Safety and Health

America (ASHCA).

AGRICULTURAL SAFETY & HEALTH COUNCIL OF AMERICA

Library of Medicine.

## **2007**

"Agritourism:

## 1982

**1981** 

initiated.

Agricultural Rescue

Training programs

First Auction of Champions generated \$11,000 for the work of Farm Medicine.

**1983** 

Began health

screenings

at annual

Wisconsin

Days.

Farm Progress

## **1992**

Named one of 10 Prostate, Lung, Colorectal and Ovarian Cancer Screening Centers funded by National Cancer Institute (NCI).

## **1991**

Designated a NIOSH Center for Agricultural Disease and Injury Research, Education, and Prevention, involving many projects and external collaborations.

## 1996

Led a national committee that developed the "National Action Plan for Childhood Agricultural Injury Prevention," adopted and funded by the U.S. Congress.



8



This concept was a natural extension of the ongoing research and clinical expertise at Marshfield Clinic, starting with the Clinic's acquisition of Dean Emanuel, M.D., a cardiologist who joined the staff in 1958. Dr. Emanuel had a deep interest in respiratory illnesses and Farmer's Lung disease and embarked on a series of research projects and investigations of unique maladies occurring in dairy farmers. The rest, as they say, is history.

## **2013**

Farm MAPPER (Farm Mapping to Assist, Protect and Prepare Emergency Responders) goes live.



## 2008

"Safety Guidelines for Hired Adolescent Farm Workers (SaGHAF)" released.

### **2013**

"Parent First, Farmer Second" media campaign wins awards for radio, prints ads directing farm parents to www.cultivatesafety.org.

## **2015**

UMASH Seguridad en las Lecherias: Immigrant Dairy Worker Health and Safety project wins award from National Safety Council for Stakeholder Collaboration in Occupational Injury Research.



## 2019

Rural Firefighters Delivering Agricultural Safety and Health (RF-DASH) conducts first national workshop.



## 2011

Co-founded NIOSH-funded Upper Midwest Agricultural Safety and Health (UMASH) Center.



## 2013

Wisconsin Rollover Protection Structure (ROPS) Rebate Program established with donor support.



### **2013**

Wisconsin Infant Study Cohort (WISC) project, a collaboration with University of Wisconsin involving the only rural birth cohort in the nation, completes pilot phase.

# 2015

AgInjuryNews.org, an interactive online tool built with publicly-available ag injury news reports, goes live.



## 2021

National Children's Center funded by NIOSH for sixth consecutive fiveyear cycle.

#### Agricultural Youth Work Guidelines - updated, interactive and based on the North American Guidelines for Children's Agricultural Tasks are published.

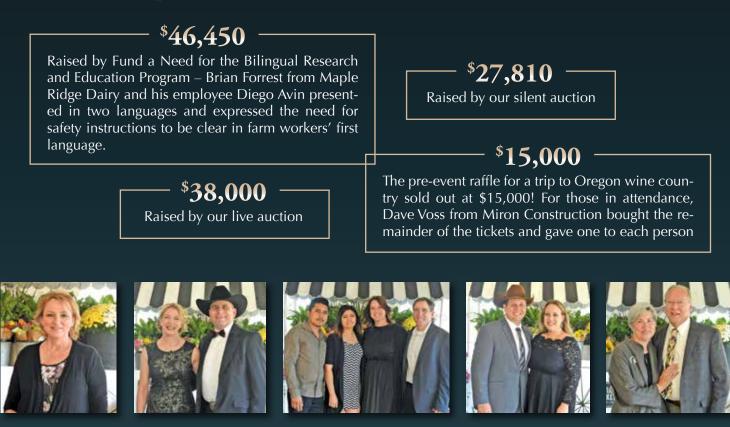


**201**7

Auction + Co. presented by Miron Construction Co., Inc. raised funds for the National Farm Medicine Center at Marshfield Clinic Health System. On behalf of Marshfield Clinic Health System Foundation and Farm Medicine, we'd like to thank you for meeting us at the market, and we look forward to seeing you again next year.

AUCTION + CO. meldalet appendenter 13-10 REPTEMBER 13-10

### We are pleased to announce Auction & Co. raised \$216,000!



Director's Thank Gou

On behalf of the National Farm Medicine Center, I would like to extend our team's appreciation and, frankly, awe in what the Marshfield Clinic Health System Foundation has been able to achieve at this year's Auction of Champions. With committed volunteers and inspiring donors, Farm Medicine is again equipped with resources to improve the health and wellness of farmers, farmworkers, and farm families. These donated dollars have stopped tractors from rolling over operators in our ROPS Rebate Program, raised the profile of agricultural health and safety research globally through the *Journal of Agromedicine*, built and expanded injury surveillance technologies like AgInjuryNews.org, and supported the dedicated efforts of our Outreach and Education team.

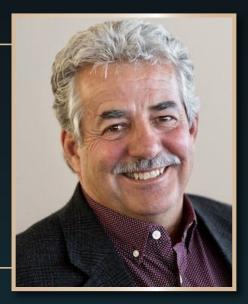
I'd like to personally thank Diego Avin and Brian Forrest from Maple Ridge Dairy. Their presentation of our Center's need for a Bilingual Education and Research Program was sincere and compelling. We're very excited to start recruiting a new staff member to take on the challenge of making sure our research and education is linguistically and culturally relevant for all those that work in agriculture, and especially our Spanish-speaking communities.

~ Casper Bendixsen, Ph.D.

For information regarding how to support the important work of the National Farm Medicine Center, please contact Tiffany Halan, Marshfield Clinic Health System Foundation, at 715-387-9189 or halan.tiffany@marshfieldclinic.org.

### Jerry Meissner

Jerry Meissner, 67, passed away Dec. 13, 2021, after a long battle with cancer. Our hearts are heavy as we mourn his loss and celebrate his legacy. His fun-loving spirit and caring, compassionate heart made him truly one of a kind. We can all only hope to live a life so full of laughter, family and giving back. If you know Marshfield Clinic Health System Foundation, you know Jerry. As a dedicated donor, event attendee, committee member and auctioneer, the passion for helping others shined through in him everyday.



"Jerry was a truly remarkable person. He loved life, his family and friends, and enjoyed them all to the utmost. He cared so much about people, always looking for a way to help those in need. One thing that sticks out in my mind is Jerry as auctioneer at our Hope Lodge Vita Bella Gala, doing a fund a need, and him literally coaxing a donation out of every single person in the room. I could go on and on about Jerry, but I'll just say that we've lost a great man who is loved and will be missed by all of us."

-Dr. William Hocking Retired Physician and MCHS Foundation Board Member "My thoughts and prayers go out to the family and friends of Jerry. I had a great opportunity to get to know Jerry when I started my event with the clinic 15 years ago. Jerry became a friend, not just to me, but my entire family. That's the kind of guy he was. Always willing to help and do everything in his power to make this world a better place. From the nights we hung out in Eau Claire, to the times I stopped by his cabin to say "hi," Jerry always knew how to have a good time with others. Jerry, you will be missed, as the shoes you left behind will be impossible to fill."

> -Rich Seubert Rich Seubert's Celebrity Trap Shoot Event Organizer

"Jerry brought out the best in all of us. His compassion for others motivated us to reach deeper into our hearts (and often our wallets) to help those in need. He led by example, with humility and a genuine desire to make things better. Jerry was an inspiration to me and to all who were fortunate to call him a friend."

> -Al Nystrom Mike's Run Event Organizer and MCHS Foundation Board Member







"The National Farm Medicine Center is driven by people, not just researchers and staff, but by community partnerships. Jerry and Diane Meissner are two of the most impactful community members in the history of our center. Jerry's passing gnaws at our hearts and raises our arms out to his wonderful family. It also brings forth so many memories of how much he did for our center and our community. Jerry was central to the success of our Auction of Champions and leading the community to philanthropically support our team's efforts."

> -Casper Bendixsen Director, National Farm Medicine Center

### **Researchers Find Farm Programs Don't Talk About Child Care**



A five-year National Children's Center project is examining the strategies that farm parents in Ohio, Vermont and Wisconsin use to take care of their children during the workday, and how these strategies connect to farm parents' ability to get their work done and the safety of their children. The research is being conducted by two rural sociologists: Florence Becot, Ph.D., associate scientist at the National Farm Medicine Center, and Shoshanah Inwood, Ph.D., associate professor in the School of Environmental and Natural Resources at The Ohio State University.

This new project builds on 10 years of United States Department of Agriculture (USDA)-funded research looking at how health insurance and child care issues impact farm families. In May 2020, Becot and Inwood published a summary of this research in https://theconversation.com/family-farms-are-struggling-withtwo-hidden-challenges-health-insurance-and-childcare-159542 an article in *The Conversation* with project collaborator Andrea Rissing of Emory University. Inwood had previously found that over two-thirds of 186 farm families she surveyed experienced child care challenges due to issues connected to cost, availability and quality. In the early months of COVID-19, Becot found that 58% of 134 farm parents she surveyed indicated that it became harder to look after children due to child care and school closures. This short article in *The Conversation*,

written for a general audience, was republished in over 40 news outlets, opening dialogue for the new child care research project. "Shoshanah and I have been able to use this article as a business card," Becot said. "This article has opened up new conversations with farmers, farm organizations, USDA and policy makers."

Becot and Inwood focused Year 1 of the new project on understanding how farm services providers who work on topics connected to farm business and farm safety incorporate children and child care topics in their work. "Our review of 91 resources and programs and 38 interviews confirmed our suspicions that children and child care are issues that are seldom talked about yet these are the folks that regularly interact with farmers," Becot said. The researchers will next utilize surveys, discussions, a photo project and other techniques to understand farm families' lived realities with child care, and the type of solutions that could make it easier to navigate children, work and farm safety.

### Findings From Environmental Scan of Farm Programs and Resources

Researchers Dr. Becot and Dr. Inwood reviewed 91 programs and resources offered by 63 organizations in Ohio, Vermont and Wisconsin and at the national level. Despite family being ubiquitous to agricultural production, more than half of the programs or resources on topics connected to farm business and farm safety (53%) made no mention of children/family aspects, and 84% made no mention of child care; even those targeted at

beginning farmers and women. Children/familv aspects were integrated into 18% of programming, while only 4% integrated childcare aspects. These findings identify a gap in farm planning enterprise and farm safety resources.



### - ASHCA Honors Barbara Lee with Lifetime Achievement Award



Barbara Lee, Ph.D., director of the National Children's Center, received the Lifetime Achievement Award at the North American Agricultural Safety Summit, hosted by the Agricultural Safety and Health Council of America. "Barbara is a visionary, a pathfinder and a supporting friend," said Dan Hair, former senior vice president and chief risk officer at WCF Insurance, Salt Lake City, Utah. "Her contributions to agricultural safety and health make her worthy of all the thanks and recognition we can give."

### The Farm Kid Paradox Project Focuses On Benefits And Dangers For Children Who Grow Up On Farms

Children who grow up on farms can benefit from a good work ethic, enhanced problem-solving skills and a stronger immune system, but they also face dangers from animals and equipment. This Farm Kid Paradox is the focus of a five-year study, which enrolled beef and dairy farm families and focused on safety professionals in its second year.

"The phrase we use a lot is that safety – injury prevention – needs to be tied more closely together with the benefits of farm life. We really hope that that's the innovation that we're bringing," said Casper Bendixsen, PhD, principal investigator and director of the National Farm Medicine Center.

"It's a nontraditional approach to injury prevention research," Bendixsen said. "It aims to tackle the benefits of certain exposure to the work environment. Specifically, we cite that kids that grow up in utero and around farm animals benefit." Researchers have honed in on large livestock because they know the epidemiological benefits of being raised around cows, he added.

Another uncommon approach for this study is its research subjects. In addition to dairy and beef farm parents, investigators are studying other research professionals.

Researchers say this study is long overdue and deals with a primary barrier: "People have this unified sense that parents must perceive benefits so much so that they otherwise ignore the risks or don't care about the risks." Bendixsen said they want to describe and resolve the gap between safety professionals and farm parents.

"We've had a nice robust conversation about some of the assumptions that are baked into the phrase safety professional," Bendixsen said. "Farm parents don't know a lot of safety professionals. And safety professionals don't spend a lot of time with farm parents."

However, people like FFA instructors, extension agents and animal handling professionals are potential advocates for safety. "What I think is unique is the idea that farm parents may think of them but not necessarily utilize them in

### WISC/CREW/ECHO

Like the farm and rural families we enroll, the Wisconsin Infant Study Cohort (WISC) is small but mighty. We recruited pregnant moms from more than 300 families—half from farms and half from rural non-farms—to investigate the impact of early life exposures on the development of allergies, eczema, and asthma in their children. Our ability to understand the development of these key health outcomes is heightened through participation in the Environmental influences on Child Health Outcomes, or ECHO, Consortium.

Despite the pandemic, WISC began enrolling our participants into ECHO. Our dedicated participants responded with overwhelming support-WISC recruited one of the largest percentages of our participants of any cohort in ECHO. Enrolled participants can complete their surveys online. ECHO participation is built seamlessly into participants' ongoing WISC activities to minimize the additional time required of participants. that way," Bendixsen said.

The Farm Kid Paradox project will generate new safety messages for a variety of professionals to help guide and support farm parents to avoid injury to their children.

"There are great benefits for kids to grow up on farms, but what we're after is maybe a more programmatic approach," Bendixsen said.



#### From WISC to Mayo

Elizabeth Ender, M.D., has been accepted to a prestigious fellowship at Mayo Clinic in Allergy and Immunology. Dr. Ender completed her residency at Marshfield Clinic Health System and contributed greatly to the WISC study in 2021, completing nearly 30 interviews with WISC study parents after being trained in semi-structured interview techniques by the WISC team. This data is essential to the anthropological aims in the current WISC study and will supplement clinical samples and survey data with real-life stories of parenting, farming, and how children's health develops over time.

#### HEROS

The Human Epidemiology and Response to SARS-CoV-2, or HEROS, study concluded this year. The HE-ROS study enrolled families from 20 NIH cohorts focused on asthma and allergic diseases, one of which was our pre-existing pediatric immunological cohort, WISC, to conduct public health surveillance on the spread of COVID-19 among families with young children. This study informed school re-opening and infection control policies within schools across the country. Further scholarship is going to explore predictors of vaccine adherence and conducting an entirely remote pediatric cohort.

### **Research Project Tracks Childhood Ag Injuries In Region**

A National Children's Center project has laid the framework to track agricultural injuries in farm children. The U.S. lacks such a surveillance system, making it difficult to determine the scope of injuries, trends and safety measures.

Principal investigator Jeffrey VanWormer, Ph.D., said the first year of his five-year project was focused on linkages – finding farm kids in a 20-county region and then pairing them with Marshfield Clinic Health System injury records.

"The first project is who are the farm kids?," VanWormer said. "That's perhaps the hardest thing we do. How do you figure out who lives on a farm?" VanWormer is a research scientist at the Center for Clinical Epidemiology & Population Health, Marshfield Clinic Research Institute.

The team took state data identifying dairy farms and compared it to medical records to find people younger than 18 living at an address where dairy production happens. At any given time, there are 700 to 800 kids who live on a dairy farm in the study area, VanWormer said. The researchers used a commercial vendor to find non-dairy farms, resulting in a bigger yield – about 3,000 kids, he said.

Next, using billing codes from clinic or hospital visits, they looked at how many farm kids were treated for an injury that might have happened in an agricultural setting, such as being kicked by a cow, getting a hand caught in machinery or a tractor rollover. Each potential case was vetted to quantify the nature of the injury, he said.

In the coming year, they'll track injuries outside of the Health System, start plotting injuries in the past and look at injury rates, gender differences, age factors and if children were working or playing at the time it happened.

Researchers want to "set up an ongoing surveillance system without a lot of money to maintain," Dr. VanWormer said. "If it works relatively well, then you could do it in other parts of the state or country.

You just need large health care systems that can connect to the state data."

Co-investigators are Bryan Weichelt, Ph.D., associate research scientist at the National Farm Medicine Center, and Richard Berg, M.S., biostatistician in the Office of Research Computing and Analytics at Marshfield Clinic Research Institute.



### An Injury Surveillance System —

Farming comes with some risk, said Dr. VanWormer, research scientist, Center for Clinical Epidemiology & Population Health, Marshfield Clinic Research Institute. "I can say with some confidence, even though the number of family farms has clearly decreased in the state in the last 20 years, kids are still getting hurt," he said. His research project will establish a childhood agricultural injury surveillance system that can be scaled across the United States.

### New Online Community Links Child Farm Safety Advocates



The Childhood Agricultural Safety Network, or CASN, has introduced a new online community that makes it easy for people who are interested in keeping children safe on farms to connect, collaborate, learn and share.

It's easy to join. Members can post and discuss child agricultural injury incidents, ask questions, chat, and share resources, events, news and announcements. The community offers safety strategies and health expertise at www.childagsafety.org.

The idea for the online community grew out of two assessments conducted by the National Children's Center – the 2020 Vision project and a needs assessment for enhancing child agricultural injury prevention. The results showed that while the National Children's Center is recognized as the national leader in child agricultural injury prevention, more networking activities were needed to strengthen partnerships, increase private sector engagement and increase the public's awareness of the importance of preventing child agricultural and increase.



### **National Farm Medicine Center Projects**

- Analysis of Stakeholders' Usage of a Publicly Available Collection of Agricultural Injury Reports from News Media
- Assessing Facebook Ads Manager as a Participant Recruitment Tool for an Online Health and Safety Survey
- AgInjuryNews.org
- Agriculture Rescue Training (ART)
- Dairy Microbiome (DOME)
- Environmental influences on Child Health Outcomes (ECHO)
- Farmers' Mental Health and Intervention Models
- Geo-Mapping Antimicrobial Resistance in E. coli from Humans and Animals
- Health Insurance, Rural Economic Development and Agriculture
- Human Epidemiology and Response to SARS-COV-2 (HEROS)
- Journal of Agromedicine: Practice, Policy, and Research
- Skin Cancer Screening
- Social Theories in the Agricultural Health and Safety Field
- Substance Abuse and Recovery in the Northwoods
- Understanding and Addressing the Disparity in Vaccination Coverage Among U.S. Adolescents Living in Rural Versus Urban Areas.
- Veterans to Farmers
- Wisconsin Farm Fatalities Report
- Wisconsin Infant Study Cohort (WISC)/Children's Respiratory and Environmental Workgroup (CREW)
- Wisconsin Rollover Protection Structure (ROPS) Rebate Program

### Upper Midwest Agricultural Safety and Health Center Projects

- Assessing and Preventing Occupational Injuries in Animal Agriculture
- Rural Firefighters Delivering Agricultural Safety and Health (RF-DASH)
- Telling the Story of Agricultural Safety
- Tickborne Disease Risk for Agricultural Workers and their Families in the Midwest

## National Children's Center for Rural and Agricultural Health and Safety Projects

- Adoption of Agricultural Youth Work Guidelines: Identifying Motivators and Barriers for Use
- Assessing the Impact of Traumatic Injury News Articles on Farm Mothers and Educators
- Capabilities and Limitations of Youth Operating Agriculture All-Terrain Vehicles
- Farm Adolescent and Mental Health
- Emerging Issues Program
- Farm Kid Paradox: Anthropological Inquiry into the Benefits and Risks of Child-Livestock Interaction
- Linking Childcare to Farm Children Safety
- Incorporating Agricultural Youth Work Guidelines Into Curriculum of Wisconsin Agricultural Educators
- Surveillance of Medically Attended Agricultural Injuries in Farm Children
- NCCRAHS Outreach Core

### Central States Center for Agricultural Safety and Health Projects

- Health and Safety Risks among Immigrant Cattle Feedlot Workers in Nebraska and Kansas
- Safety and Health in the Cattle Feed Yard Industry

### Working Through the Pandemic

Agricultural work cannot stop for the pandemic; neither can the National Farm Medicine Center's mission to improve the health and safety of farming and ranching communities. Our team has adapted to the new realities through technology and, where necessary, with social distancing protocols in order to continue current projects and successfully fund important new ones. Meanwhile, we're evaluating new needs and our ability to address them as the world prepares for any future health emergencies.

### The "Back 40"

Original U.S. homesteads were divided into two front 40-acre sections and two back 40-acre sections. These "back 40s" were often remote and left less cultivated. The back 40 is also metaphor for the second half of something's life – signaling the potential new growth. I very much look forward to seeing what Farm Medicine's next 40 years yields. Agriculture and agricultural people change and adapt continuously. The potential for new hazards and new means of promoting health await in the back 40, and we hope you'll join us as we start to explore.

~Casper Bendixsen, Ph.D.

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