Rural Firefighters Delivering Agricultural Safety and Health (RF-DASH)



Casper G. Bendixsen, PhD Kate Barnes, MS, MPH



Presentation Summary

The goal of this project is to **improve the farmers' access to capable farm hazard analysis**. The RFDASH project provides farm safety tools and knowledge to rural firefighters through community colleges, emergency responder training events, and individual training officers.

Today's Discussion

- Project Team
- Pilot Project Results
- Core Goals & 3 Year Trajectory
- Year 1 Successes



National Farm Medicine Center

Established in 1981 in response to occupational health problems seen in farm patients coming to Marshfield Clinic.





National Leadership

- Home to the National Children's Center for Rural and Agricultural Health and Safety
- Collaborator in the Upper Midwest Agricultural Safety and Health Center
- Engaged in research, prevention, and outreach



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



NFMC's Prior Trauma Research: Dean Stueland

- Concurrent appointment with Dept. of Emergency Medicine
- Several articles on trauma, acute injury in farm populations
- Key Findings:
 - 38% of injuries were in non-farm residents
 - Animals, falls, and machinery are leading causes of injury
 - Mostly received their care in ED



Project Team

- Casper Bendixsen, PhD (PI)
 - Social-Cultural Anthropologist with Background in Agriculture and Fire/EMS
- Kathrine Barnes, MS, MPH Research Specialist
 - Medical Anthropologist, Training in Social Network Analysis and Public Health Theories
- Content Experts/Curriculum Authors
 - Davis Hill Penn State University
 - Dennis Murphy, PhD Penn State University
 - Matt Keifer, MD, MPH Puget Sound VA & University of Washington
 - Jerry Minor Fire Chief of Pittsville Fire



Project Leader's Personal Background

~SCOW

- Family farm in Idaho
 - Barley, wheat, alfalfa
 - Beef cattle, sheep, horses
 - Outfitting
- 9 years competing in rodeo
 - College and professional
 - Bareback bronc riding
- Served as a volunteer firefighter
 - Resident fire/EMS program at the University of Idaho
 - FF1, EMT-B, Apparatus-Driver



Theories at Work

- Socioecological Theory
 - Enlisting the influential people and institutions around individual farmers
- Health Belief Model
 - Leveraging this external influence to affect perceived susceptibility, barriers, cues to action in order to change behavior and decision-making
- Extended Parallel Process Model
 - Knowledge elicits fear but provides the proper means to increase self-efficacy



Pilot Project Results

UMASH funded pilot –Spheres of Influence

- 3 groups of participants (n=31)
 - Dairy Farmers (n=10)
 - Agricultural Insurance Agents (n=10)
 - Agricultural Bankers (n=11)
- 32 cards with actors in dairy farming
- 5-point Likert-like scale
 - Integration into daily functions
 - Farm safety knowledge
 - Capacity to affect farmers' behavior change
- Interviews
 - Recorded, transcribed





Demonstration: Pile Sorts

- Pile sorts came from child development
 - Ex., Shapes/colors
- Later, used to describe classification systems of other cultures
 - Ask: which plants treat disease x? which plants treat disease y?



Results: Qualitative Data

"I think these are the **closest advisors** and the people that the **farmers would respect** as far as knowing something about safety. That the **firefighters** – if they told them there was something that could cause a fire hazard they'd listen. Insurance agent – that the rates would go up. The vet is on the farm all the time. He would be able to compare stuff. The hired help – they were – they would listen to people on the farm. The agronomist – again, has that connection with how they handle things, the nutritionist – how they handle things. The attorney – the legal aspect. And then the people that are involved in the farm is who'd they want that contact from."—Agricultural Banker



Results: Qualitative Data

"You've got to be **preventive** of that situation happening [people standing opposite corn chopper in operation]. And then like in the middle of a fire – we are lucky with our firefighters and our EMTs. We're also really rural and they're a cultured community. Most of them are volunteer firemen and they're all getting **trained for the farm dangers** and everything. So, we're getting more fortunate with that."– *Dairy Farmer*

"Fire fighters and EMTs, boy, **you'd sure hope you didn't need that but if you did I would say that would be pretty advantageous**. I guess that would – well, mainly more on if it was needed, that would be there."– Insurance Agent



Why Leverage Rural Fire and EMS

- Agriculture is the most **dangerous** industry
- Insufficient number of safety consultants
- Fire/EMS are more numerous, embedded, trusted, and trainable

So,

- Increase who is available in rural areas for farm hazard analysis
- Provide them with easy to use, technologically enhanced **tools**
- **Sustainable** in community & technological colleges, insurance companies



FarmMedicine_{center}

Core Goals and 3 Year Trajectory

- Year 1 relationship building, curriculum development
- Refine social network analysis instrument
- Year 2 Train at least 20 RF-DASH Trainers, preparing them to train further RF-DASH Farm Hazard Analysts
- Begin social network analysis
- Accepted curriculum at partnered institutions
- Development further implementation strategies
- Year 3 Develop sustainability strategies
- Aim at national training opportunities

Collaborators



McMILLAN WARNER MUTUAL INSURANCE COMPANY

• Funded by Upper Midwest Agricultural Safety and Health (UMASH) Center

M.M/

- Wisconsin State Fire Chiefs Association
- Wisconsin State Firefighter's Association
- Algonquian-Lake in the Hills Fire Department (IL)
- Buckfield Fire Department (ME)
- South Area Fire Emergency Response District (WI)
- South Central College (MN)
- Northcentral Technical College (WI)
- Penn State Extension
- McMillan Warner Mutual Insurance
- Rural Mutual Insurance
- Professional Dairy Producers of Wisconsin (PDPW)
- Agricultural Safety and Health Council of America
- New York Center for Agricultural Medicine and Health







A MINNESOTA COMMUNITY AND TECHNICAL COLLEGE



Part 1: Introduction to Agricultural Emergencies

- Raise awareness of the rates and reasons why agriculture is dangerous
- Identify the major causes of farm injuries and how to prepare for responding to them
- Emphasize that prevention is possible





Part 2: Farm MAPPER



http://www.marshfieldresearch.org/nfmc/farm-mapper

Interactive web tool that provides emergency responders onsite information about hazards and physical layouts of agricultural operations aimed to make responding to emergencies on farms safer.



Part 3: Farm Hazard Analysis Tool (Farm HAT)



safety/farmhat

https://saferfarm.org/

Simple method for evaluating and recommending corrections for hazards in agricultural environments (perform a safety consultation).

Part 4: Farm First Aid

- Extended Parallel Process
- Deploy first aid skills within farm scenarios
- Giving family and bystanders purpose in the response workflow
- Punctuate each farm first aid module with preventative tactic



http://extension.psu.edu/business/agsafety/farm-emergencies/first-aid

Social Network Analysis

- NOT social media (Facebook, Twitter, etc)
- Interviews
 - Who do you know? How well do you know them?
 - 30-45 minutes
- Why is it important?
 - Who is well positioned?
 - What makes a good trainer?





Year 1 Successes

- Overwhelming positivity and acceptance in Fire/EMS community
 - Train-the-trainers at capacity
- Publication in fire trade journals
- Connections via UMASH website
- Curriculum Roundtable, June 2017
 - Content experts from WI, WA, and PA met with instructors, trainers, and deans from WI, MN, IL
- *Progressive Dairyman* set to run series covering project progress throughout year 2

Proposed Modifications to Marshfield Clinic EHR

- Occupation
 - Current & previous
 - BLS codes (drop-down)
- Veteran status
 - Branch
 - Years of service
 - Location of deployment
- Identify firefighter/farmers
- Observe trends in farmers' health care utilization
- Etc,





Questions?

Connect with us! 1-800-662-6900 nfmcsh@mcrf.mfldclin.edu







