Can improved wellness reduce farm injuries?
Info From The Certified Safe Farm Program

Donham, Meppelink, Rohlman, Kelly, 2018 J Agromed.

Kelley J. Donham MS, DVM, DACVPM
Professor Emeritus, College of Public Health, University of Iowa

Presented at NCarolina Agromedicine Symposium, March 27, 2019
Questions?

• Are Farmers more healthy than the general population?

• Does wellness status of farmers effect injury risk?

• Does the CSF intervention help improve farmer health?

• So what?
What we know about basic health of farmers

• Occupational Health & Safety
  • Most Hazardous industry
    • NIOSH Agricultural Safety - https://www.cdc.gov/niosh/topics/aginjury/default.html

• High Suicide risk
  • Ringgenberg, Ramirez, Peek-Asa, Donham.
    • J Rural Health, 2017

• Lower risk for CVD and Cancer
  • Blair, 2005

• Basic Wellness? – Not much
Are Farmers more healthy than the general population?

• Reduced CVD and Cancer
  • Blair 2005

• Little Data on U.S. farmer health conditions

• Australia results
  • High obesity, CVD risks
    • Brumby 2011
Relationship of general health of workers and occupational illnesses and injuries

• For workers generally: poor health = occupational Injury Risk
  • Donham, Meppelink et. al. 2018

• Total Worker Health (TWH) CDC - NIOSH
  • “---integrate --- work-related safety and health hazards (control) with promotion of injury and illness prevention efforts to advance worker well-being”.
  • https://www.cdc.gov/niosh/twh/default.html

• Only a few programs dealing with Health
  • Scandinavian countries
  • Certified Safe Farm – Research phase from 1996 – 2006 – IA, NC (Only integrated program in N. America)
  • Sustainable Farm Families – Australia
  • Rural Health Initiative – Shawano, Wisconsin (Theda care)
• A five-year prospective study – IA
  • Donham et. al. 2007
• Operates in IA,
• Operates in NC from 2000 – present
• Some activity in NE, NY, WI
• A Comprehensive TWH concept
  • Heath Screening with Education
  • Health coaching
  • On farm Safety Audit with education and goals
  • General Occupational Health and Safety Education
• Incentives
The Cohort

• 438 Male Iowa producers/Owner operators
• Participants in the Certified Safe Farm Program
• Stratified Random Selected - Representative of the farmers and farms of Iowa
Prevention by Occupational Wellness and Education

- Cholesterol and Cholinesterase Screening
- Pulmonary Function Testing
- Client Consent & Orientation
- Blood Pressure, Height-Weight Evaluation and other Vital Signs
On farm Safety Audit + Education
CSF Results
Donham Rautiainen et. al. 2007

- Reduced serious injuries
- Lowered Respiratory illnesses
- Increased PPE use
- 47% Lowered health care costs

- General Health??

![Bar chart showing occupational health care costs by payment method.]

**Certified Safe Farms**
- Lowered health care costs
- Increased PPE use
- Reduced serious injuries
- Lowered Respiratory illnesses

**Control**
- General Health??

[Graph: Occupational Health Care Costs by Payment Method]
# Health Measures of Farmers Compared to National Norms

<table>
<thead>
<tr>
<th>Clinical Variables</th>
<th>CSF %</th>
<th>National Norms %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injuries</td>
<td>9.6%</td>
<td>2.9% (BLS)</td>
</tr>
<tr>
<td>BMI &gt; 25</td>
<td>80.1%</td>
<td>66%</td>
</tr>
<tr>
<td>Cholesterol &gt; 200</td>
<td>38.6%</td>
<td>44.3%</td>
</tr>
<tr>
<td>High Blood Pressure</td>
<td>15.9%</td>
<td>33.6%</td>
</tr>
<tr>
<td>Combo of High BMI + BP + CHL</td>
<td>3.1%</td>
<td>40% (metabolic syndrome, rural) High BP, waist, CHL, glucose</td>
</tr>
</tbody>
</table>
Physical and Behavioral Health Measures Related to Farm Injuries

• High combined BMI+BP+CHL – Related to increased risk of injuries

• Low perceived health – Related to increase injuries

• No other health measures related to injury risk
Effect of CSF Program on Health Measures
(two measures, 3 – 5 years apart)

Figure 1. Paired Clinical Medians
Summary - Conclusions

- Are Farmers more healthy than the general population?
  - No – very similar
  - More Obese - Yes
  - Lower total & LDL cholesterol
  - Lower blood pressure

- Do health indicators of farmers relate to injury risk?
  - Yes
    - BMI+CHL+BP = Higher injuries
    - Poor self assessment of health = Increased injuries
      - But not related to individual health measures
      - Measure of negative behavioral health?

- Does the CSF intervention help improve farmer health?
  - Yes
    - Lower total CHL
    - Lower LDL
    - Lower HDL
    - Lower heart rate
    - Not BMI

- Does improved wellness prevent Injuries? -- yes – data suggests so.
Discussion
(What?)

• How to explain Lowered CVD & Cancer. Is this advantage going away?
• Must Combine Occupational Safety & Health + Basic Wellness and Mental Health to affect “Total Worker Health”.
• Comprehensive Health Prevention Programs for farmers needs to aim at total worker health for best results.
  • E.G.: The Certified Safe Farm Program. Sustainable Farm Families. Farm Hat
• The CSF Program positive results on Health, may be due to the combination of the farm audit, health screening, and education.
• Insurance and other incentives are necessary to drive this Total worker health
References


• NIOSH Agricultural Safety - https://www.cdc.gov/niosh/topics/aginjury/default.html


