

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

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I. LIST OF TERMS AND ABBREVIATIONS

CASN	Childhood Agricultural Safety Network
FFA	Future Farmers of America
JASH	Journal of Agricultural Safety and Health
NAGCAT	North American Guidelines for Children's Agricultural Tasks
NASD	National Agricultural Safety Database
NCAE	National Council of Agricultural Employers
NCCRAHS	National Children's Center for Rural and Agricultural Health and Safety
NIFS	National Institute for Farm Safety
NIOSH	National Institute for Occupational Safety and Health
NYCAMH	New York Center for Agricultural Medicine and Health
SaGHAF	Safety Guidelines for Hired Adolescent Farm workers
STESAF	Safety Training for Employers and Supervisors of Adolescent Farmworkers
USDA	United States Department of Agriculture
WGL	Washington Growers League

II. Abstract

The National Children's Center for Rural and Agricultural Health and Safety (NCCRAHS) serves as the only NIOSH funded agricultural center designated to focus on children (0 to 18 years). Formally established in 1997, the NCCRAHS has been a leader in:

a) building new partnerships; b) conducting research with practical implications; c) generating consensus on complex issues; and d) producing resources deemed useful to professional and lay audiences.

Children on our nation's 2 million farms and ranches continue to be injured and killed in agricultural settings where they visit, play, work and live. NIOSH (with USDA-NASS) data, released in late 2007, estimated 23,074 agricultural injuries among children and adolescents working, visiting and living on farms. The majority of events affect household (family farm) children; and about two-thirds of all injuries affect non-working children. Since the beginning of NIOSH's Childhood Agricultural Injury Prevention Initiative in late 1996, progress has been made on many fronts. Data from 1998, 2001, 2004 and 2006 reveal an overall 37% decline in childhood agricultural nonfatal injuries. On family farms, the rate of injuries per 1,000 household youth declined by 44% (from 18.8 to 10.5/1000 youth). During this same period while NIOSH was funding research and surveillance, there was a sizable investment in private sector funding dedicated to community-based educational programs. NCCRAHS staff members, with their external partners and scientific advisors, have been involved in many of the research, intervention, training and outreach activities that address childhood agricultural safety for this past decade.

From 2003 to 2009 (the span of this grant report), NCCRAHS staff members planned, implemented and evaluated nearly all project activities as proposed in the Center application submitted in June 2003. The Center's theme was "building partnerships to protect children at work and children at play on our nation's farms and ranches." Projects were designed to support this theme and, indeed, numerous new partnerships were developed and sustained.

The Administrative Core strived to provide a framework to support, guide and monitor the progress of the overall center and the specific components of each core. Administrative efforts were directed toward the key activities required to address national needs and project specific issues in a timely and efficient manner. The Administrative Core was comprised of the Center Principal Investigator, all Core leaders, the Migrant Clinicians Network liaison, the Center Manager and the Communications Specialist. Ten external advisors provided periodic input and review of activities. The mini-grant program funded up to \$60,000 annually, reviewing 90 proposals and funding 26 different projects. The progress and quality of Center initiatives were evaluated for process and impact. A monthly staff meeting included updating a Benchmark Metrics document for process and status. An external evaluator assisted with impact evaluation of select aspects of the Center's work. Average annual NIOSH budget support for the full Children's Center was nearly \$700,000. Considerable supplemental funds from the private sector and in-kind contributions extended the Center's work beyond the NIOSH funding limits.

The Outreach Core, comprised of three projects, provided opportunities to address the Center's theme of "building partnerships." The Stakeholder Communications project aimed to provide technical assistance, disseminate newsletters and special reports, maintain dynamic websites, provide professional seminars/presentations, and support public awareness campaign efforts. With changing use of the Internet, project aims and websites were modified to meet public demands for more information readily downloadable from websites. The Childhood Agricultural Safety Network (CASN) aimed to enhance individual and organizational capacity to address childhood farm safety and to build and expand collaborations among child safety advocates in

the U.S. and Canada. The most visible product of the CASN group was the launching of a national public awareness campaign with the primary poster depicting a grandfather with child on tractor amid a message that it is “Easier to Bury a Tradition than a Child.” The Best Practices Recommendations project allowed the Center to address a series of different small scale projects that meet needs of child safety advocates, including health and safety guidelines for agritourism operators, resources for employers who hire adolescent farm workers, and resources for assisting farm owners in constructing safe play areas on farms.

The Prevention/Intervention Core included one funded project that addressed safety training for employers of adolescent farm workers. This project yielded information that led to a reshaping of resources and training approaches. A follow-up intervention was funded in the next grant cycle.

The Education Core had two funded projects. First, an upgrade of the National Agricultural Safety Database (NASD) resources on children and agriculture was undertaken. Through a systematic approach, current resources were scored on various criteria and recommendations were submitted to the NASD administrator. Unfortunately, recommended upgrades were not adopted. This led to the NCCRAHS decision to use its own website for posting and promoting downloadable resources on topics of greatest concern and interest to safety advocates. The second project was the Journalists’ Workshop intervention. Over the five year grant, five distinct workshops were convened in locations co-hosted by other NIOSH Agricultural Centers. Each event was modified based on feedback from previous workshops. Evaluation of the process and impact yielded very positive findings, including a measurable increase in appropriate reporting in the media of childhood agricultural issues. A “how to” conduct a journalist workshop was published to facilitate expansion of this concept on other topics, with other audiences.

The Research Core included one project that addressed youth tractor crashes on public roads with respect to legislation that required tractor safety certification of young drivers. Results were informative and demonstrated the limited impact that legislation has when the training curriculum on injury prevention does not match the majority of injury events.

In addition to the specific funded projects within the Center, staff members were engaged in childhood agricultural safety activities as part of their professional activities in organizations such as National Institute for Farm Safety and American Public Health Association. Further, advisory roles with other NIOSH Agricultural Centers and international colleagues extend the reach of staff beyond the Center’s projects. Individual RO1 research grants furthered the efforts of the Center to build upon the knowledge base regarding children and farm safety. This synergy of activities has enabled NCCRAHS to make significant strides in enhancing the health and safety of all children exposed to hazards associated with agricultural work and rural environments.

III. Highlights or Significant Findings

Notable highlights and significant findings from the National Children's Center for Rural and Agricultural Health and Safety (NCCRAHS) work were described in detail in a 2007 document submitted to NIOSH for its evidence package during the National Academies' review of NIOSH programs. The elements of that report included: a) Leadership; b) Communications; c) Work Guidelines for Children; d) Network of Child Safety Advocates; e) Guidelines for Safe Play on Farms; f) Promoting Accurate Media Stories; g) Youth Operating Tractors and Public Policy; h) Small Grants; i) Professional Training; j) Evaluation; and k) Emerging Problems. Because that report has previously been reviewed and adopted by NIOSH, we refer the reader to that full report (much of which was integrated into the National Academies' review, "Agriculture, Forestry, and Fishing Research at NIOSH" (2008). A few key highlights are provided here.

Leadership

The NIOSH-funded National Children's Center serves as a beacon to other professionals, highlighting major disease and injury prevention issues within the context of rural environments and production agriculture. This was accomplished by setting standards, providing guidance and technical assistance, disseminating resources to professionals who work with the public, and continually encouraging child safety and farm safety advocates to address prevention issues for children at work and/or at play on farms and ranches. NCCRAHS has disseminated NIOSH injury surveillance results and suggested interventions targeted to prevent the most common sources of injury.

The National Children's Center has provided testimony and public statements in a number of venues since its establishment. From 2003 to 2009, several activities took place. In 2003 the Department of Labor requested comments on the proposed changes to the Fair Labor Standards Act (Child Labor in Agriculture) and Hazardous Occupations Order. We carefully reviewed the data and considered the reality of farm work in offering statements to support selected changes in federal regulations. The NIOSH NORA II initiative prompted our staff to assess gaps in research and programming and submit written statements and oral comments at Town Hall meetings. In 2006 the NCCRAHS Director was appointed by NIOSH Director, Dr. John Howard, to co-chair the NORA Agriculture, Forestry and Fishing Sector Council, a role she held until January 2009. When NIOSH requested feedback on its proposed future activities for the Childhood Agricultural Injury Prevention Initiative [Federal Register, March 16, 2009, Vol. 74, No. 49, p. 11,112-11,113], NCCRAHS informed child safety advocates of this opportunity to submit written comments on the public docket. In addition to NCCRAHS' own comments, more than 50 people submitted written comments and recommendations.

The leadership role of the National Children's Center is evidenced in activities that are sometimes highly visible. In earlier years, we hosted two major conferences (1992, 1995) and generated the 1996 National Action Plan. These were followed up by a 2001 Summit on Childhood Agricultural Injury Prevention, with a subsequent report of consensus-derived recommendations. In June 2006, our staff hosted the National Institute for Farm Safety annual conference in Sheboygan, WI, with Dr. John Howard, NIOSH Director, as the keynote speaker. In September 2006 farm owners and parents across the U.S. were blitzed with a public awareness campaign, led by the National Children's Center with support from 10 other national groups. Collectively our message was intended to shape social norms that emphasize the presence of children younger than 12 years on or near tractors is never acceptable. The campaign's message, "It's Easier to Bury a Tradition than a Child" was carried in more than 100 farm media outlets and also had radio and television public service announcements. Leadership activities such as this are a positive reflection back to NIOSH's commitment to safety and health for children who live, work, or visit on farms.

In another leadership venue, the NCCRAHS Director was intimately involved in launching the Agricultural Safety and Health Council of America (ASHCA) in late 2007. Several NCCRAHS staff members participate in administrative duties of this new organization which has strengthened partnerships with national farm organizations, agribusiness, insurance, and others interested in adding safety to their agricultural line of work.

Communications

Our *NURTURE* newsletter previously was sent in print copy to about 2,200 recipients and posted online to facilitate information dissemination. It is now disseminated almost exclusively via email list serves and agricultural media outlets. The purpose of *NURTURE* is to share information regarding major childhood agricultural health and safety programs occurring across North America. Additionally, *NURTURE* tries to highlight and promote collaborations between researchers and the farming community. Prior to each newsletter preparation, stories and announcements are solicited from all NIOSH Agricultural Centers, the CDC Injury Prevention Centers and non-government organizations addressing child safety, youth programming and farm safety. Feedback from readers indicates the newsletter is timely and informative. In addition to the four-page newsletter, an annual *Year in Review* (20 pages) summarizes the major projects, publications and presentations conducted by our core staff.

The National Children's Center hosts three websites that are continuously upgraded to provide relevant information. The general site gives an overview of many program initiatives and provides downloadable public education resources and professional reports (www.marshfieldclinic.org/nccrahs). The NAGCAT site (www.nagcat.org) is the primary means for disseminating all resources related to youth working on farms. The Childhood Agricultural Safety Network (CASN) also has a dedicated website (www.childagsafety.org) that is managed by our staff. Over this first decade, the websites experienced continual growth in content and a steady increase in visitors from all over the world.

Work Guidelines for Children

Released in 1999 by our Center, the North American Guidelines for Children's Agricultural Tasks (NAGCAT) have become a key resource for safety professionals and farm parents. The core content for 62 specific agricultural tasks was systematically developed based on the job hazard analysis framework then visually depicted into posters so parents could match a child's developmental capabilities with appropriate work assignments, training, and supervision. The dedicated website (www.nagcat.org) was upgraded in early 2009 to facilitate quick access to specific tasks. A five-year assessment of the impact of NAGCAT was conducted in March 2005. Results revealed many professional publications citing the relevance of NAGCAT and numerous references in the lay press. Most importantly, a study published in the American Journal of Public Health by Gadowski et al. reported the efficacy of NAGCAT in reducing injuries by about 50%. Areas that warrant further research were identified and have been the source of grant applications. NAGCAT concepts have continued to expand since their 1999 release. For example, NAGCAT has been adopted in Australia and Sweden; new guidelines for additional work tasks have been generated in the U.S.; recreational guidelines are under development; and the World Health Organization has expressed interest in using the process and template of NAGCAT for developing countries. NAGCAT-related resources have been translated into five languages.

Network of Child Farm Safety Advocates

The Childhood Agricultural Safety Network of national organizations has grown into an increasingly stronger group of trusted colleagues. Started as a loose knit group, the Network has evolved into knowledgeable and committed colleagues. The Network's purpose is to "set a vision and facilitate coordination of childhood agricultural injury prevention efforts across North America." Our NIOSH funds are used to support individual training in principles of safety and health, ongoing communications within the Network and periodic in-person meetings. Active organizations in the Childhood Agricultural Safety Network (CASN) include Farm Safety 4 Just Kids (Iowa), Progressive Agriculture Foundation (Birmingham, AL), Migrant Clinicians Network (Austin, TX), National Center for Farmworker Health (Buda, TX), AgriSafe Network (Iowa), National Safe Kids Campaign (Washington DC), National Safety Council (Itasca, IL) with the National Education Center for Agricultural Safety (Peosta, IA), the National FFA (Indianapolis), National 4-H Council (Chevy Chase, MD), American Farm Bureau Federation, Farm Safety Association (Ontario), Canadian Ag Safety Association (Manitoba) and Safe Kids Canada (Toronto). As facilitators of this Network we note that several of these organizations vigorously compete against each other for corporate sponsorship and media attention. Largely through our efforts, organization leaders and representatives now sit around the same table discussing priority issues, long-term strategies, and areas where cooperation supersedes competition.

Guidelines for Safe Play Areas on Farms

Injury and fatality data reveal that more than half the children injured or killed on farms are not working at the time of the incident. Previously, most attention regarding farm safety for children focused on working conditions. In response to new insights based on the etiology of childhood farm injuries, our Center published *Creating Safe Play Areas on Farms* in 2003 to serve as a guidance document for safety professionals and community leaders. Since that time, there has been a significant increase in attention to this topic of safe, structured, supervised play areas for children on farms. Safety Day Camps for youth often have an adjunct program for parents to promote fenced, supervised play areas and organizations such as Farm Safety 4 Just Kids, Cooperative Extension, and the National Education Center for Ag Safety (NECAS) have demonstrated how to construct play areas at farm community events. The farm media have picked up on this topic in trade journals and newspapers, and several national farm organizations have featured this topic at annual conventions. We continue to build on this theme through social marketing techniques and new research and intervention projects here at our Center and in collaboration with other NIOSH Agricultural Centers.

Promoting Accurate and Influential Media Stories

In 2004, the National Children's Center hosted its first two-day Journalists' Workshop in Marshfield, WI. Using an immersion technique, nine journalists experienced an inside view of childhood agricultural injuries and fatalities and learned principles of farm injury prevention for children. By meeting with both professionals and active farm parents, they came to appreciate the value of story-telling to ultimately influence social norms. The second workshop, convened in 2005 in upstate New York, used participant feedback from 2004 to tighten the objectives and agenda. Our Journalists' Workshop initiative has had a positive influence on the number and quality of writing outputs of participants, which subsequently impacts the perspectives of their story readers. After the first two years, the workshop had yielded more than 100 published popular press articles that reflect principles learned in through this training. In the third year, we continued to refine and improve this novel intervention because it has already prompted positive changes in media reports of child agricultural injuries. The 2006 event was held in Wenatchee, WA; the 2007 event in Kentucky, and the 2008 event in Texarkana, AK. Two other projects, funded by NIOSH, have emanated from our Journalists' Workshop. The University of Kentucky,

with its agricultural journalism academic program, has adopted concepts of this initiative for students in the schools of journalism and nursing.

Youth, Tractors and Policy

Policy-relevant research and interventions are an important focus for our Center. We believe a center should conduct work that will guide decisions of people in a position to change organizational policy (e.g., 4-H tractor training, insurance incentives) as well as local, state and federal regulations affecting youth work in agriculture. Research regarding youth operating farm tractors on public roads recently found that a state law intended to prevent farm tractor injuries/fatalities among youth had minimal effect. A related project searched and identified the variations in 50 state laws for youth tractor operations. Projects such as these can be instrumental in identifying model legislation with the highest likelihood of achieving the desired outcomes – injury reduction.

Small Grants to Facilitate Novel Projects and Partnerships

We are especially proud of our Center's mini-grant program that provides seed money for projects that otherwise could not compete for federal research grant funds. We have refined a process for soliciting, reviewing, selecting and then guiding projects conducted by individuals across the U.S. Our forms and protocol have been shared and adopted by three other NIOSH Ag Centers. The goal of our mini-grant program is to support feasibility and pilot projects in the outreach, prevention/intervention, education, and research areas within NIOSH's Childhood Agricultural Injury Prevention Initiative. Funds were designated for short-term projects with a maximum duration of 12 months and maximum funding of \$15,000. Organizations and individuals throughout the United States are eligible to apply for funds. Funds support projects that: 1) test innovative strategies in the prevention of childhood agricultural illness and injury; 2) strengthen partnerships between safety professionals, agricultural organizations, and the media; and 3) translate research findings into practical applications.

During this 5-year period, we funded 26 separate external projects and reported their findings in the *NURTURE* newsletter. Several of the projects stimulated further programs and research endeavors. For example, the North Dakota Farm Bureau project that tested incentives to motivate farm owners to build fenced-in play areas led to the June 2006 announcement by Manitoba Labour that \$500 grants are now available to Manitoba farmers for purchasing supplies for play areas. This project was later adopted in Ontario, Canada and recently the University of Iowa teamed up with a major insurance company to systematically validate the efficacy of \$500 incentives for play areas on farms. Another positive impact of the mini-grant initiative has been the development of partnerships between migrant advocates and traditional farm safety groups. A joint mini-grant between Migrant Clinicians Network (MCN) and Farm Safety 4 Just Kids (FS4JK) resulted in the development of a Spanish *Aunque Cerca Sano* comic-style book regarding pesticide safety and children. It was prepared by MCN, printed and stocked by FS4JK, then widely disseminated by both organizations. To date, there have been four printings, more than 200,000 copies distributed, and the demand for an English version has just been addressed. In another joint mini-grant, the farm safety day camp programs led by Progressive Agriculture Foundation were modified with help from MCN to address Spanish-speaking, migrant children. With the new curriculum, Progressive Agriculture staff has now convened six camps in four states with special tracks for migrant children.

Yet another example of a positive impact of our mini-grants occurred with the FY '04 funding of three separate projects addressing safe play areas on farms. Rather than approve the proposals as submitted, we worked with the principal investigators to modify the objectives of the three projects so they would be complementary and comparative. Teleconference calls

connected the project staff mid-way through the year to assess problems and status. Results and overall “lessons learned” were then shared in a session at the 2005 National Institute for Farm Safety annual conference. The outcome from this was a collective view of what works and doesn’t work in promoting the concept of safe play areas on farms within the farming community.

The mini-grant program offers a special opportunity to address minority and underserved populations. During this grant period we funded four mini-grants for Spanish-speaking populations, three for Amish farm families, one for Hmong farm families, and one related to American Indians. Unfortunately, no quality proposals were received addressing children of African American farmers/farm workers.

Professional Training

Since 1997, the National Children’s Center has conducted professional education and training via several mechanisms. A three-day Rural Youth Safety Training program was held in 1998, 1999, and 2000. With declining registration for the three-day event, we changed our approaches. Webinar or Elluminate lectures have been provided to graduate students and colleagues at six different universities. A half-day pre-conference on Childhood Agricultural Injury Prevention was held prior to the 2005 National Institute for Farm Safety conference and sessions have been led at National Injury Conferences hosted by the CDC in Atlanta and Denver. A workshop on children and agriculture was held in conjunction with the Western Agriculture conference in Cle Elum, WA in 2008. In addition to formal training, staff members are repeatedly contacted for advice, technical assistance, and formal consultation on new initiatives that are under consideration. While our Center is not directly affiliated with any university, we have adjunct faculty appointments at several academic institutions and periodically have undergraduate and graduate students conducting projects with guidance from our staff.

Evaluation

During the Center’s first five-year cooperative agreement, we contracted with an external evaluator to assess the formative stages of the Center. Via a comprehensive and systematic evaluation, we were able to identify strengths and weakness of our infrastructure, communications, staffing patterns, and outreach activities. Additionally, evaluation feedback aided our consensus-development methods that were critical to projects such as NAGCAT, the 2001 Summit results, and the Safe Play Areas on Farms initiative. Since the formal evaluation was conducted, we have modified our evaluation methods. The internal tracking of progress on eight different projects is streamlined via a Benchmark Metrics system that is updated monthly prior to the Center’s staff meeting. This electronic system has motivated project staff to be accountable for achieving objectives on time, while it maintains documented evidence of major developments and roadblocks.

Emerging Problems

Several developments are affecting our approaches to childhood agricultural injury prevention. These include changes in the demographic profiles of people at risk, changing technologies along with globalization of agriculture and shrinking corporate funds for implementing programs that have been shown to be effective. NIOSH data have been helpful in showing the relationship of household/residency status of injury victims. We know that the majority of injury/fatality victims live on family farms where hazards exist and unsafe practices prevail; often associated with economical hardships and/or are using farm practices handed down over time. It is especially difficult to influence positive behavior changes on farms that cannot afford safety

upgrades or where culture and tradition limits our access to providing safety information, e.g., within the growing Anabaptist and Hispanic worker populations.

Another emerging issue is associated with private sector funding. In the early phase of the children's initiative, agribusinesses were willing to fund programs and resources of many different organizations, providing they saw a marketing opportunity for themselves. Currently, two major programs (i.e., Farm Safety 4 Just Kids and Progressive Agriculture Foundation) have full time fundraising staff members. For our Center's initiatives that require funding, e.g., calendars, we are unable to secure funds from the same corporate sponsors of the two organizations because they limit donations to these two organizations. At the same time, Cooperative Extension outreach across the country has diminished with loss of USDA support of farm safety programs. These factors of limited corporate funding and reduced outreach by Extension create a challenge in reaching the farming community directly. They also emphasize the importance of our Childhood Agricultural Safety Network for working in collaboration to facilitate access of corporate funds that ensure effective programs are delivered directly into the farming community.

IV. Translation of Findings

Virtually all intervention studies and research conducted through this Center has a "research to practice" component. Outreach activities are based upon scientific evidence from published research. Where no research or evidence exists, our Center has used a consensus-development approach to determine best practices, safety guidelines for work and play, and policy recommendations. Refer to Section III. Highlights or the individual project reports for specific details.

V. Outcomes/ Relevance Impact

The NCCRAHS activities span an array of research, education, training and outreach with different desired outcomes. Some activities have had a measurable impact while others have had anecdotal reports of positive outcomes. A few examples are provided here.

Leadership of the NIOSH-directed Childhood Agricultural Injury Prevention initiative is associated with the NCCRAHS in Marshfield, WI, which strives to acknowledge NIOSH funding whenever possible. The NCCRAHS is often the first source of information for the media and the general public interested in learning more about children and agricultural safety. Recognition by the media and general public is likely associated with our track record of accomplishments, Internet presence, peer-reviewed publications and national reports, and the five Journalists' Workshops that were convened during this grant period.

The North American Guidelines for Children's Agricultural Tasks (NAGCAT) have had an important impact in that it has changed how youth are assigned work tasks in agriculture. The emphasis is no longer on "age" of child but on "child development principles." This paradigm shift has affected approaches and training programs used by farm safety as well as rural recreational safety professionals. Another impact of NAGCAT pertains to the process employed for developing NAGCAT, in that by engaging more than 100 people in their initial development the "ownership" of NAGCAT was diffused. Unlike other child safety resources affiliated with one author or one institution, NAGCAT has achieved the status of being universally owned.

Under our Center's leadership of the Childhood Agricultural Safety Network (CASN), child safety advocates and organization representatives who previously were unknown to each other (or were competitors for funding) now sit around the same table discussing priority issues, long-term strategies, and areas where cooperation supersedes competition.

Projects such as the review of public policy and youth operating tractors were the first to challenge standard practices and can be instrumental in identifying model legislation with the highest likelihood of achieving the desired outcomes of injury reduction among youth working in agriculture.

The Center's small grants (mini-grants) program has had an impact by providing start-up funds for community-based activities conducted by individuals who are not in a position to compete for major grants. Although the scope of these projects was limited, the impact in some cases was to prompt continued attention to children and agriculture by organizations and individuals who may otherwise have ignored this issue.

VI. (Project A) Scientific Report

A. Project Title: Administration

B. Background

The Administrative and Planning Core of the National Children's Center for Rural and Agricultural Health and Safety provides a framework that supports, guides, and monitors the progress of the Outreach, Prevention/Intervention, Education, and Research Cores as they strive to achieve their goals and specific aims. This has been accomplished under the leadership of Barbara Lee, PhD, who has more than three decades of management experience and has devoted her work to childhood agricultural injury prevention since 1990. Members of the Administrative Core include the four Core Leaders, the Migrant Clinicians Network liaison, a Center Manager and the Communications Specialist. Leadership opportunities for the National Children's Center are enhanced via our External Advisory Board. From 2003 to 2009, 10 individuals served as advisors, representing agricultural employers, agribusiness, insurance industry, American Indian farmers, Migrant/Hispanic farm workers, youth-serving organizations and researchers. Advisors participated in periodic teleconference calls, email communications and an in-person meeting held in Marshfield, WI.

During this report period (five years plus a year with carry-over funds) the Administrative Core strived to be responsive, flexible, and innovative in addressing emerging issues facing the agricultural community and the priorities of our NIOSH partners in this Cooperative Agreement. Administrative efforts were directed toward the key activities required to address national needs in a timely and efficient manner. An important component of the Administrative Core is the provision of an evaluation framework to track and analyze progress, direction, and relevance of all core projects. Through this administrative structure, the National Children's Center Director was able to oversee efforts to achieve the specific administrative aims.

On an annual basis, the National Children's Center made available funding up to \$60,000 to support small-scale projects and pilot studies that address prevention of childhood agricultural disease and injury. Funds were allocated to support projects that: test innovative strategies; strengthen partnerships between safety professionals; agricultural organizations and the media; explore new research questions; and translate research findings into practical applications. Copies of the six month and final reports for the funded projects are available upon request from NCCRAHS.

C. Specific Aims

1. Foster growth and success of the Center through effective leadership and staff development.
2. Oversee infrastructure/systems and budgets to meet the needs of Core leaders.
3. Promote exploratory and creative initiatives (with an emphasis on underserved populations) among new investigators via the Mini-grant program.
4. Plan, implement, and evaluate annual meetings of key stakeholders.
5. Assess progress and quality of all Center initiatives.

D. Methodology

Leadership - In order for a National Center to conduct meaningful research, education and outreach activities, it needs a core group of committed and knowledgeable staff, and a network of external colleagues. The National Children's Center core staff members require the support and encouragement of an effective leader with resources and vision to help them achieve the desired outcomes of their research, interventions or outreach endeavors. During this grant period we had a sizable staff with extensive experience and full time commitment to agricultural health and safety here in Marshfield, WI. Within the Marshfield medical complex, Dr. Lee has a senior scientist leadership position, granting her the authority to positively influence the growth of the Center (e.g., leveraging funds, encouraging donor contributions) and to influence organizational policies that promote job satisfaction, professional growth, and staff retention. While there has been turnover among support and program staff, the leadership (i.e., Lee, Marlenga, Kirkhorn, and Stueland) has remained constant. Staff shortages have been relatively short-lived and presently all positions are filled.

Internal advisors of the Center met on a monthly basis to report and share project status, relevant updates to the Center and updates on nation agricultural initiatives and programs such as the NORA Agricultural, Forestry and Fishing Sector Council, meetings of the NIOSH Agricultural Research Centers, the Agricultural Safety and Health Council of America, and Migrant Clinicians Network. Our most efficient process evaluation technique is the use of a Benchmark Metrics chart which is updated prior to each monthly Center team meeting. For each project and each major component within a project line, the chart lists out the metric (e.g., number of website hits, number or resources requested, publications), the aspect being evaluated (e.g., new partnerships developed, timeliness of submitting report), and a comments section. Each project leader gives a monthly update on their budget status and activities and solicits input on future directions.

Leadership opportunities for the National Children's Center are enhanced via our External Advisory Board. Ten individuals served as advisors from 2003-2008, representing agricultural employers, agribusiness, insurance industry, American Indian farmers, Migrant/Hispanic farm workers, youth-serving organizations and researchers.

Budgets - The annual NIOSH funding of the Center was about \$700,000 for internal projects and external subcontracted work. Budgets were managed with monthly monitoring and carryover funds from the fifth year were accessed to complete a few projects that were behind schedule. The overall center budgets and individual project budgets are reviewed during staff meetings.

The Center Manager has access to all revenue and expense reports and meets regularly with the Sponsored Programs (Grants Management) staff of Marshfield Clinic Research Foundation. On a few occasions, requests were submitted to NIOSH to transfer funds within the total allocated budget to accommodate needs related to modified projects and timelines.

Mini-grant program - The Center's mini-grant program provides seed money for projects that otherwise could not compete for federal research grant funds. We have refined a process for soliciting, reviewing, selecting and then guiding projects conducted by individuals across the U.S. Our forms and protocol have been shared and adopted by three other NIOSH Ag Centers. The goal of our mini-grant program is to support feasibility and pilot projects in the outreach, prevention/intervention, education, and research areas within NIOSH's Childhood Agricultural Injury Prevention Initiative. Funds are designated for short-term projects with a maximum duration of 12 months and maximum funding of \$15,000. Organizations and individuals throughout the United States are eligible to apply for funds. Funds are allocated to support projects that:

- 1) test innovative strategies in the prevention of childhood agricultural illness and injury;
- 2) strengthen partnerships between safety professionals, agricultural organizations, and the media; and
- 3) translate research findings into practical applications.

Our internal protocols for soliciting, reviewing, and monitoring mini-grants are available upon request.

E. Results

Aim 1. Leadership - The NCCRAHS has maintained its stature as a leader in childhood agricultural injury prevention. In 2008, this Center was granted a competitive 5-year renewal award from NIOSH. Internal advisors of the Center met on a monthly basis and reported and shared project status and relevant updates, including information on national agricultural initiatives. External Scientific Advisors participated in periodic teleconference calls, email communications and one in-person meeting.

Aim 2. Budgets - The budgets during this grant cycle were well managed as noted in the FSR report submitted in December 2009.

Aim 3. Mini-grant program - From 2003-2008, NCCRAHS received 90 applications for mini-grant feasibility projects. Twenty-six mini-grants were awarded for innovative strategies, strengthening partnerships and translating research findings into practical applications. Funded projects were consistent with the 2001 Summit Report, addressed underserved populations, demonstrated novel collaborations, and tested methods to motivate adults to use the North American Guidelines for Children's Agricultural Tasks (NAGCAT) and/or construction of safe play areas on farms. Deliverables include: 7 peer reviewed journal publications, 3 presentations, 11 educational resources, 3 safe play areas, photo novellas, as well as safe play areas research, a documentary, a theatre production for Latino farm worker families, news articles, booklets and pamphlets.

Aim 4. Annual meetings of stakeholders - Given the national scope of this center (versus regional scope of other NIOSH Ag Centers), our stakeholders are the intermediaries between our Center's work and the general public. Many of our Center's stakeholders are members of the Childhood Agricultural Safety Network (CASN) which is described later in this report). The CASN group met at least once in person each year and convened quarterly teleconferences.

Aim 5. Progress and quality of Center initiatives - Nearly all the proposed and funded activities in the original June 2003 Center application have been completed. Several of the projects led to continued and expanded work. For example, an intervention study has now been funded that builds on the “Creating Safe Play Areas on Farms” guidelines and knowledge gained from Canadian members of the Child Ag Safety Network (i.e., Manitoba and Ontario provinces offer \$500 grants to farmers). Outreach on topics such as play areas, NAGCAT, and agritourism continue to expand. The value and quality of NCCRAHS efforts was further confirmed with the successful competitive renewal grant, awarded in 2008.

VI. (Project B) Scientific Report

A. Project Title: Stakeholder Communications

B. Background

The overall theme for the National Children’s Center is “building partnerships to protect children at work and children at play on our nation’s farms and ranches.” The Stakeholder outreach communications is critical to effective partnerships built on trust and understanding of each other’s perspectives.

The goal of this project was to facilitate timely and effective communications among key stakeholder groups including federal, state, and local health and safety agencies; healthcare providers; the scientific community; media; agricultural workers and their families; management and union representatives; the CDC/NIOSH regional Centers for Agricultural Disease and Injury Research, Education, and Prevention; and the NIOSH Education and Research Centers (ERC) that have an agricultural training component. Specific aims are related to five highly integrated communication strategies: technical assistance, newsletters, websites, seminar-type presentations, and public education campaign support. An important element of our communication efforts has been evaluation through measurable outcomes.

C. Specific Aims

Original

1. Provide a minimum of 50 timely, relevant, and high quality technical assistance responses per month upon request.
2. Prepare and disseminate four newsletters for stakeholders, including one annual special edition.
3. Maintain two dynamic websites (NCCRAHS and NAGCAT) that provide a minimum of 10,000 monthly visits.
4. Respond to a minimum of six requests for professional seminars and/or presentations per year.
5. Provide support for the development of local, state, regional, and public education campaign efforts.

Stakeholder Communications Specific Aims

Modified

1. *Provide a minimum of 15 timely, relevant, and high quality technical assistance responses per month upon request.*
2. *Prepare and disseminate three newsletters for stakeholders, including one annual special edition.*
3. *Maintain two dynamic websites (NCCRAHS and NAGCAT) that provide a minimum of 250 monthly visits.*

D. Methodology

All Technical Assistance Requests are entered into a Microsoft Office Access database. The database collects information about customer type, request topic, customer level, request type, requests by location, unique requests and requests from special populations. The specific aim of providing a minimum of 50 timely, relevant, and high quality technical assistance responses per month upon request has decreased to 15. This steady decline is due to the increased content and resources on the National Children's Center website: <http://www.marshfieldclinic.org/NCCRAHS/>.

The NCCRAHS newsletter, *NURTURE*, was published three times a year with one special edition Year in Review for all five years. The number of newsletters was reduced from four to three because of personnel and printing costs. The dropping of one newsletter was offset by adding more information to each issue and then transitioning to primarily an electronic newsletter. Hardcopy *NURTURE* newsletters were mailed until 2008 when the newsletter was formatted to be disseminated electronically, increasing its potential readership. Examples of featured stories on NCCRAHS projects include widespread acceptance of the *Agritourism Health and Safety Guidelines for Children*, the Journalists' Workshop and a new publication offering tips on how to conduct a workshop, NIOSH-funded mini-grant awards, ergonomic forces required to operate controls on commonly-used tractors which typically exceeded the physical abilities of most children aged 13-17 years, and the covered progress of many NIOSH initiatives.



The NCCRAHS Website Committee meets regularly to update content on the site for the Center's main initiatives: NAGCAT, Safe Play, Agritourism Health and Safety Guidelines for Children, Journalists' Workshop, *NURTURE* Newsletter, Recommended Resources, fact sheets and links to key agricultural safety organizations. NCCRAHS uses Omniture Inc. SiteCatalyst software to measure web analytics such as visits, downloads and unique page views specific to the National Children's Center website. This software was more accurate than previous web metrics allowing NCCRAHS to modify 10,000 web visits per month to a more accurate 250 visits per month. The website's content, look and usability were refreshed in 2008.

Between Oct. 1, 2003 and September 30, 2008, the NCCRAHS responded to childhood agricultural injury presentation requests directly or through referral on topics including: safe play areas on the farm; safety interventions and strategies to reduce injury; North American Guidelines for Children's Agricultural Tasks, asthma and farm children; all-terrain vehicles; rural adolescent suicide; regulations to prevent pediatric farm injuries; safety of groundwater for children; a public awareness campaign to keep children off tractors; supervision; how to reduce childhood injuries on agritourism operations; childhood agricultural injury in the U.S; forces required to operate controls on farm tractors with implications for youth operators; development of safety guidelines for hired adolescent farm workers; perceptions of children's exposures to farm work hazards on management intensive grazing operations and integrating environmental and occupational health into peri-natal care for migrant farm women.

The Children's Center provided technical support and consultations for Safe Play, NAGCAT, SaGHAF and Child Labor Laws. The Center provided public education campaign support for the Childhood Agricultural Safety Network's "Keep Kids Away from Tractors."

E. Results

Aim 1. Technical Assistance Requests - From October 2003-September 2008 NCCRAHS has handled 1,334 requests, with an average of 22 requests per month.

Aim 2. Newsletter and special edition publication - *NURTURE* newsletter and the annual *Year in Review* have more than 2,200 subscribers.

Aim 3. Websites - The NCCRAHS Website has had an estimated 3,600 visits (as defined by a sequence of consecutive page views without a 30 minute break), and 15,500 unique page views (counted each time NCCRAHS site loads a page onto their browser) over the five year period.

Aim 4. Presentations, Professional Roles - NCCRAHS responded to 53 requests for professional seminars and/or general presentations, with an average of 10 presentations annually. NCCRAHS staff members are professionally active in roles that support public health and leadership of national initiatives, including hosting relevant meetings of regional and national importance.

a. Training Seminars

Journalists' Workshops 2004, 2005, 2006, 2007, and 2008 - see Journalists' Workshop Scientific Report

Educational Training - provided by NCCRAHS for the National Institute for Farm Safety Childhood Agricultural Injury Prevention Pre-conference June 19-20, 2005, Wintergreen, VA

Educational Training - provided by NCCRAHS for the National Institute for Farm Safety June 25-30, 2006, Sheboygan, WI

Injury Prevention 101 - provided by Susan Gallagher-Tufts University on behalf of NCCRAHS for Marshfield Clinic and St. Joseph's Hospital. *Setting Realistic Goals with Limited Time and Budget*, August 28, 2007, Marshfield Clinic, Marshfield, WI

Conference Workshop - on Childhood Agricultural Injury Issues, provided by Barbara Lee, Western Ag Conference, Cle Elum, WA 2008

b. Professional Roles of Scientists, Conferences

Co-Chair - National Occupational Research Agenda (NORA) Agriculture, Forestry and Fishing Sector Council - Barbara Lee

External Scientific Advisor - Pacific Northwest Agricultural Safety and Health Center, U-Washington - Barbara Lee

Advisory Committee - Doctoral Program in Public and Community Health, University of Wisconsin, Milwaukee, WI - Barbara Lee

External Scientific Advisor and Affiliate Faculty member - Wisconsin Injury Research Center at the Medical College of Wisconsin, Milwaukee, WI - Barbara Lee

Chair - North American Agromedicine Consortium, 2005 - Steven Kirkhorn

Adjunct Faculty member - University of Wisconsin, School of Nursing, Madison, WI and UW-Eau Claire School of Nursing - Barbara Lee

Committee Roles - National Institute for Farm Safety, ongoing - Barbara Marlena, Regina Fisher, Scott Heiberger, Tammy Ellis, Barbara Lee

c. Conferences/Meetings Sponsored

National Institute for Farm Safety Conference, Wintergreen, Virginia, June 20-25, 2005. (sponsor)

North American Agromedicine Consortium 2005. (sponsor)

Midwest Rural Agricultural Safety and Health Forum, October 27-28, 2005. (sponsor)

National Institute for Farm Safety Conference, Sheboygan, WI, June 25-30, 2006. **Host organization**

North American Agromedicine Consortium 2006. (sponsor)

National Tractor Safety Initiative all Centers meeting, Marshfield, WI, August 2007. **Host organization**

NIOSH-National Occupational Research Agenda (NORA) Sector Council Meeting, Marshfield, WI, August 2007. **Host organization**

Agricultural Safety and Health Council of America Feasibility planning meetings in Chicago, Salt Lake City, Washington DC. **Host organization**

F. Discussion

The *NURTURE* newsletter and the National Children's Center's websites have been particularly helpful in sharing information regarding major childhood agricultural health and safety programs occurring across North America. Feedback from *NURTURE* readers indicates the newsletter is timely and informative. In addition, *NURTURE* has promoted communication within the agricultural safety community by soliciting story ideas and announcements from all NIOSH-funded Agricultural Centers, the CDC Injury Prevention Centers and non-government organizations addressing child safety, youth programming and farm safety. The websites have experienced continuous expansion and targeting of content. The general site gives an overview of many program initiatives and provides downloadable public education resources and professional reports. The NAGCAT site (www.nagcat.org) is the primary means for disseminating all resources related to youth working on farms. The Childhood Agricultural Safety Network (CASN) also has a dedicated website (www.childagsafety.org) that is managed by our staff.

G. Conclusions

The Stakeholder Communications project's five integrated strategies – technical assistance, newsletters, websites, seminar-type presentations, and public education campaign support – have successfully supported the National Children's Center's overall theme "building partnerships to protect children at work and children at play on our nation's farms and ranches."

VI. (Project C) Scientific Report

A. Project Title: Childhood Agricultural Safety Network

B. Background

The Childhood Agricultural Safety Network (CASN) has been an initiative of the National Children's Center for the past eight years and has served as the primary means by which the National Children's Center for Rural and Agricultural Safety and Health (NCCRAHS) works to "build partnerships to protect children at work and at play." When the National Children's Center was initially established in 1997 there was limited information regarding child-specific efforts in farm safety. It was clear that improved communications between involved (or at least interested) organizations and individuals would be helpful. During the first NIOSH five-year cooperative agreement for the National Children's Center, formal collaborations were established with eight national-level organizations. This mechanism involved providing \$5,000 to each organization annually if they deemed it critical to their involvement. In 2003 this group of individuals representing their organizations focusing on childhood safety decided to act on the recommendations from the 2001 Summit on Childhood Agricultural Injury Prevention and adopt the mission "to set a vision and provide leadership and coordination of childhood agricultural injury prevention efforts in a manner that is both geographically and ethically diverse." This solidified the network now known as the Childhood Agricultural Safety Network. During this second five-year award cycle the CASN group has built upon our early experiences and expanded our vision and membership which has grown to include 17 organizations representing expertise in childhood safety, special populations, Hispanic farm workers, labor regulations, agricultural health and clinical practice.

Current Members include:

- AgriSafe Network, Spencer, IA
- American Farm Bureau Federation, Washington, DC
- Association of Farmworker Opportunity Programs, Washington, DC
- Canadian Agricultural Safety Association, Winnipeg, Manitoba, Canada
- Farm Safety Association, Guelph, Ontario, Canada
- Farm Safety 4 Just Kids, Urbandale, IA
- Migrant Clinicians Network, Austin, TX
- National Center for Farmworker Health, Buda, TX
- National Children's Center for Rural and Agricultural Health and Safety, Marshfield, WI
- National Council of Agricultural Employers, Washington, DC
- National Education Center for Agricultural Safety, Peosta, IA
- National FFA, Indianapolis, IN
- National 4-H Foundation, Chevy Chase, MD
- National Safety Council, Chicago, IL
- Progressive Agriculture Foundation, Birmingham, AL
- SAFE KIDS Worldwide, Washington, DC
- Washington Department of Labor and Industries, Olympia, WA

C. Specific Aims

The overall goal of this project is to strengthen partnerships and collaborative initiatives involving the agricultural community, child injury prevention organizations, and minority-serving associations through an effective Childhood Agricultural Safety Network (CASN) in order to improve and expand childhood agricultural injury prevention efforts.

Original

1. Enhance the individual knowledge and organizational capacity of CASN members to effectively address childhood agricultural injury prevention
2. Build stronger partnerships by improving the quality of communications and collaborative efforts among CASN members.
3. Expand the CASN composition and gradually transition it into the private sector to be independent of NIOSH funding.

Specific Aims

Modified

1. *Promote childhood agricultural injury prevention methods effectively through CASN members.*
2. *Build stronger partnerships by improving the quality of communications and collaborative efforts among CASN members.*
3. *Expand the CASN composition and gradually transition it into the private sector to be independent of NIOSH funding.*
4. *Develop, launch and monitor a national public awareness campaign to keep kids away from tractors.*

D. Methodology

Knowledge and capacity -To achieve the goals of the Network, we rely primarily on communications via the Internet and teleconference calls. Quarterly phone conversations are typically attended by eight to 12 people. Topics covered include updates of organizational activities, details of funding opportunities, discussion of complex issues and how others have handled them, and sharing of new knowledge.

Building partnerships - Each year, Network members meet twice in-person. One meeting is typically at the National Institute for Farm Safety annual meeting. The CASN has facilitated the development of formal partnerships between migrant advocates and traditional farm safety groups. Joint projects (funded via a Children's Center mini-grant) between Migrant Clinicians Network (MCN) and Farm Safety 4 Just Kids (FS4JK) have resulted from the partnerships built through CASN including the development of a Spanish *Aunque Cerca Sano* comic-style book regarding pesticide safety and children. It was prepared by MCN, printed and stocked by FS4JK, then widely disseminated by many Network organizations. To date, there have been four printings, more than 200,000 copies distributed. Another joint project involving the farm safety day camp programs led by Progressive Agriculture Foundation were modified with help from MCN to address Spanish-speaking, migrant children. With the new curriculum, Progressive Agriculture staff has now convened camps in four states with special tracks for migrant children. These collaborations would not have occurred



had the CASN not interacted regularly; and these special programs for migrant youth might not have materialized. Partnerships nurtured through CASN also resulted in expansion of farm safety programs into four Canadian provinces with a formal memorandum of understanding between the Canadian Ag Safety Association and the Progressive Agriculture Foundation.

By way of email communications, Network members maintain contact with each other to keep other members aware of relevant research results, project activities, safety issues and pertinent news happenings. Each CASN organization's website is linked to the other CASN organization websites. Friendships have been developed; and Network members report satisfaction with the modest level of activities with an interest in maintaining a viable Network.

In January 2006 a strategy session was held by Marilyn Adams, President of Farm Safety 4 Just Kids, Susan Reynolds, Executive Director of Progressive Agriculture Foundation and Barbara Lee, Director of the National Children's Center. Collectively, these three organizations are the most visible and best funded groups in the U.S. addressing farm safety for children. A commitment was made to follow through with a recommendation from the 2001 Summit on Childhood Agricultural Injury Prevention – "The CASN should develop a comprehensive, long-term, year-round public education campaign with messages about childhood agricultural injury prevention to be disseminated through a variety of media." This commitment has now given birth to the Childhood Agricultural Safety Public Awareness Campaign.

The goal of the Childhood Agricultural Safety Public Awareness Campaign, developed and disseminated by CASN members, was to increase awareness among the general and farm/ranch public regarding three major issues over a three-year period. That is, each year all CASN organizations would promote a single, simple safety message. Topics are based on NIOSH injury data and evidence-based prevention methods. Commencing in September 2006 during National Farm Safety and Health Week, the topics will be: 1) youth and tractors don't mix; 2) ATVs and youth operators; and 3) removal of preschoolers from work areas. An advertising agency is on contract to work with CASN members to create one or two images/messages that can be used in newsletters, on websites, trade journal ads, etc. If corporate sponsors are secured, television advertisements may be included.

Expand the Network - The NCCRAHS center staff has worked diligently to maintain ongoing communications with organizations outside of the CASN network. Staff is in the process of instituting procedures to seek out organizations whose membership to the network would be mutually beneficial specifically those that represent a key area not currently represented in the network (geographical region, special population). These expansion activities are funded in the 2008 – 2013 Center grant.

Public Awareness Campaign - The 2001 National Action Plan for Childhood Agricultural Injury Prevention (Aim 10) states that a primary task of the Childhood Agricultural Safety Network should include efforts to: "develop a comprehensive, long-term, year-round public education campaign with messages about childhood agricultural injury prevention to be disseminated through a variety of media." The CASN members developed a campaign goal to reduce the number of childhood agricultural injuries and fatalities through public awareness that influences social norms and adult behaviors.

Objectives of the campaign were to: a) Raise public awareness of childhood agricultural injuries and fatalities; b) Motivate parents to change unsafe practices; c) Motivate farm owners to protect children from hazardous situations on their farm; d) Use social marketing strategies to reach broader public; and d) If possible, determine impact of effort on public, on CASN.

In spring 2006, leaders of the Childhood Agricultural Safety Network decided to move forward with a public awareness project. The group selected that a message regarding children and tractors would be the most appropriate for this first campaign as tractors are the number one cause of childhood agriculture fatalities.

The initial planning for the Public Awareness Campaign began in May 2006 with a working meeting held in Madison, WI. Prior to the meeting the NCCRAHS staff had identified The Gunter Agency as a potential marketing firm for this campaign. Representatives of the agency attended the meeting along with six CASN members and three NCCRAHS staff members. During this groundbreaking meeting, attendees determined as a group that the campaign would have a strong message, "Keep Kids Away from Tractors: never allow a child under the age of 12 on or near a tractor." The initial plan became to develop a "poster" that could be distributed to member organizations, community groups and the media. The Gunter Agency provided sketched mock-up for potential posters with a variety of slogans. They also presented a series of potential logos depicting the theme for the campaign. The group determined six posters and two logos to distribute to CASN members for feedback. Discussion then turned to the promotion of the campaign. It was determined that a website would be developed to promote CASN activities and this campaign. Additional press release packets would be developed by The Gunter Agency with the assistance of Scott Heiberger, NCCRAHS Communication Specialist.

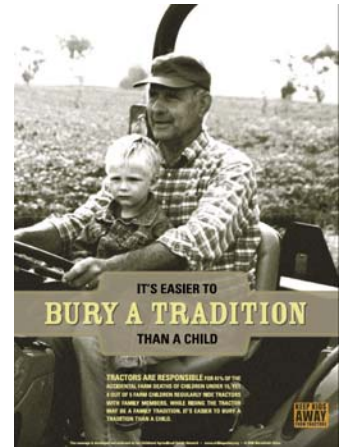
Members in attendance determined the preliminary role of CASN members in the dissemination process of the campaign. Responsibilities of members included: 1) participate in several teleconference calls, at least two in-person meetings/year and respond/communicate via email and telephone, 2) review and comment on various marketing materials drafted by the Children's Center and ad agency, 3) partake in the development of a dissemination plan drafted at the in-person meeting, and 4) disseminate created materials through individual's organization according to dissemination plan.

The meeting concluded with attendees agreeing to serve as an initial planning group and agreeing to hire The Gunter Agency (www.GunterAgency.com) for the campaign. The Gunter Agency agreed to make digital images of the posters to be distributed to the CASN members and members of the farming community for feedback. The agency would also begin work on the CASN website.

During the CASN in-person meeting June 27, 2006, about eight CASN members made the commitment as a group to move forward with the campaign. The Gunter Agency along with the initial team members from the May meeting, presented the development and dissemination plan for the public awareness campaign to members in attendance. Mock-up posters of the top six potential posters were also presented. The group determined that the posters should be developed further and sent to CASN members to garner feedback from farmers and professionals in their regions to determine the most appropriate ad for the campaign. The discussion then turned to the development of the a

CASN website, all members in attendance agreed that a organization website would be useful in distributing information not only on the public awareness campaign, but the CASN organization and the members' organizations as well. The meeting concluded with attendees expressing excitement and commitment to this new initiative of CASN.

On July 25, 2006, the draft posters and slogan logos were distributed to CASN members. Each CASN member was expected to complete a feedback form regarding the drafts presented and solicit feedback from at least five community members. Individuals were asked to gauge the effectiveness of each of the ads and then provide their first and second choice along with any additional comments regarding the ads. At the end of August results were tallied. Respondents included five CASN members and 58 farm public representatives. Three ads were indicated as definite favorites: "Bury a Tradition," "75lb Child" and "Quality Time." Results were shared during an August 25, 2006 teleconference call.



The website for the CASN organization went live on July 31, 2006. The website included a listing of all member organizations and individual members and would eventually hold all campaign materials for the "Keep Kids Away from Tractors" campaign.

On August 9, 2006, preliminary plans for the dissemination of the Keep Kids Away from Tractors Campaign were sent to members via email. During the August 25, 2006 teleconference members confirmed that the "It's Easier to Bury a Tradition than a Child" ad would be the main focus of the campaign. However, the "75 lb. Child" and "Quality Time" ads would also be developed as supplemental posters. Attendees agreed to use their contacts to distribute the campaign once the press packets were available.

E. Results

Aim 1. Knowledge and capacity - The primary output of the Childhood Agricultural Safety Network is effective communications, trust and cooperation. These attributes have yielded various results for the different Network organizations. There have been new initiatives (e.g., safety day camps for migrant youth, shared exhibit space at national conventions) spurred by friendships in the Network. There are also many examples of co-authorship of educational resources for lay and professional groups. The Network connection has exceeded typical collegial relationships, promoting a sharing of knowledge and experience in an expeditious and open manner.

Aim 2. Building partnerships - CASN continues to build partnerships by hosting in-person meetings that are adjacent to other national meeting allowing for attendance amongst interested parties and working on unified messages. CASN worked to develop a specific high quality child safety message related to tractors, which was disseminated across North America via CASN members. This message raised public awareness of childhood agricultural injury prevention strategies related to tractors. CASN was able to provide access to safety campaign resources via the dedicated website <http://www.childagsafety.org/>. CASN has coordinated dissemination efforts by members to obtain maximum national coverage for campaign. CASN also coordinated efforts to update a designated website to disseminate safety message.

Aim 3. Expand the network - The network has grown from nine organizations in 2003 to 17 organizations in 2008. The network has also gained numerous contacts that are beneficial to the group including representatives from several of the NIOSH regional Agricultural Centers. Accomplishments from this funding cycle include: development of the www.childsafety.org website, quarterly teleconferences and biannual in-person meetings, development of Spanish language resource, *Anque Cera Sano*, regarding pesticide exposure, with more than 80,000 print copies distributed; child safety awareness calendars for the past three years disseminating more than 7,000 each year to stakeholders through member organizations, addition of child development principles and migrant-specific issues into a nationally used Farm Safety Day Camp training manual, preconference training session on childhood agricultural injuries at the 2005 National Institute for Farm Safety Conference, attended by CASN members; “immersion” training in migrant issues in El Paso, TX, and Juarez, Mexico, in 2007; updates in *NURTURE*, a quarterly newsletter mailed to 2,500 stakeholders on CASN organizations’ new programs and resources; correspondence from members to editors of newspapers, magazines and trade journals depicting children engaged in unsafe practices in the farm worksite; participation of U.S. members in the NIOSH process of updating the National Occupational Research Agenda via Town Hall meetings and written comments to the NIOSH NORA website; comprehensive external evaluation of CASN, identifying strengths, weaknesses and priorities for the future; and input for the NORA Agriculture, Forestry and Fishing Sector plan.

Without a doubt, the most comprehensive and visible work of CASN was the development and dissemination of the national public awareness campaign, “Keep Kids Away From Tractors,” including the “Bury a Tradition” ad featured in more than 125 publications, including every major agricultural media outlet, plus radio and television public service announcements.

Aim 4. Public Awareness Campaign to Keep Kids Away from Tractors - On September 18, 2006, the “Keep Kids Away from Tractors” campaign was launched, coinciding with the National Safety Council’s “National Farm Safety Week.” The campaign materials were released on the CASN website and through a mailing of over 100 press release/media packets. Information on the campaign was also posted on numerous list servers.

A summary of “Keep Kids Away from Tractors” publications was collected for the one year anniversary of the campaign. The campaign was mentioned or featured in 115 publications. These publications included special interest magazines, list servers, websites, and newspapers. The majority of publications featuring the campaign have been special interest newsletters and the general newspapers. Of the 115 publications, 43 featured articles in which the campaign was the main topic and additional 14 included the campaign as a subtopic. In 25 publications the slogan “It’s Easier to Bury a Tradition than a Child” was used in relation to the National Farm Safety and Health Week or contained within dialogue from an interview with a CASN member. In addition to the article publications, the ad images have appeared in 13 publications. Further breakdown of information is listed below. At the time of this summary, members noted that the numbers presented was definitely an under representation. Tracking of the publications and appearances of the poster ads on websites and other media was difficult and inconsistent.

The number of publications were segmented by publication type and included: 35 websites, 25 general interest newspaper, 25 special interest newsletters, 12 special interest newspaper, 7 special interest magazines, 3 radio and 1 list server. Tracking of campaign appearances in media was also segmented into groups totaling: 43 main topic articles, 26 slogan appearances, 14 articles subtopic, 11 "Bury a Tradition" Ad, 8 web links, 4 radio broadcasts and 2 "Tractor vs. Child" ads. Actual display of posters is unknown but anecdotal reports indicate they are widespread. For example, an extension agricultural agent in Washington State casually mentions "oh...I printed 100 posters off the website and sent them to contacts across the state." A national organization, Society for Advancement of Violence and Injury Research (www.savirweb.org), placed campaign posters on their website homepage.

A summary of campaign activity results was collated by the project director and discussed via teleconference with CASN members. Their collective conclusions and observations included: a) that the CASN organization for the first time collectively agreed on a strong message and collaborated as an organization on an initiative to disseminate the message; b) over 14 Members organization and numerous non-member organizations were involved in the support and dissemination of the campaign; c) the campaign was supported by at least 20 farmer/rancher organizations and agribusiness (numerous others are suspected to have used materials); d) Deere, Inc. created its own version of the campaign to distribute to their dealerships nationwide; e) Safe Kids Canada obtained a provincial grant to disseminate "Keep Kids Away from Tractor" materials throughout Ontario; and f) National Safety Council used the "It's Easier to Bury a Tradition" slogan for its 2007 National Farm Safety Week.

F. Discussion

The CASN is a major component of our Center because of its ability to link together the key national organizations committed to children, agriculture, and special populations. The initial years of CASN have provided valuable insights and inspired genuine commitment among participants and their respective organizations, enabling implementation of most proposed activities. Impact measures were attained via an external evaluator who conducted confidential telephone interviews with 11 CASN members, including some who had been with the group since its inception. According to feedback from the interviews, CASN has facilitated relationships among member organizations working toward common goals. Members have received professional training that has allowed them to become more effective in their childhood agricultural injury prevention efforts. The CASN members have attested to improved capacity based upon their involvement with the network. The full evaluation report, prepared by Sharon Dorfman, is available on request.

G. Conclusions

The "Keep Kids Away from Tractors" campaign, conducted from 2006 – 2008 was the most visible product of CASN and it has potentially increased the awareness of the general and agricultural public regarding children on tractors. Due to the overwhelming response to the campaign through media and the CASN members, over 29 states have documented coverage of the campaign. The dedicated CASN website on the tractor campaign has received over 340,200 hits. By working together on the campaign, CASN members have reported increased cohesiveness and partnership with other network members. This success and collaboration generated a united voice among CASN participants and inspired them to search for additional opportunities for working together.

VI. (Project D) Scientific Report

A. Project Title: **Best Practices Recommendations Safety Training for Employers of Adolescent Farm workers (STESAF)** (*STESAF became SaGHAF in Year 5*)

B. Background

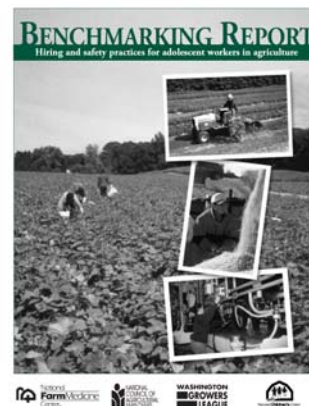
The ultimate goal of this initiative is to improve the agricultural health and safety conditions for hired adolescent workers (ages 14-17 years) by improving knowledge and practices of their employers and supervisors. With full cooperation and endorsement of the agricultural industry and agricultural safety specialists, we planned, implemented and evaluated Safety Training for Employers and Supervisors of Adolescent Farm workers (STESAF), a system for providing agricultural employers and their work supervisors with timely, high quality information and technical assistance. Through this initiative, we expected to ensure that individuals responsible for hiring, training, and supervising adolescent farm workers have ready access to information regarding: 1) proactive strategies for regulatory compliance; 2) principles of child development; 3) agricultural diseases and injuries; 4) adolescent worker health and safety recommendations; and 5) technical assistance.

C. Specific Aims

1. Assess employers/supervisors' current safety training practices, motivations, and future needs concerning their use of occupational safety and health training for teen workers.
2. Pilot test the implementation of a Safety Training for Employers and Supervisors of Adolescent Farm workers intervention with agricultural producers in Washington State who employ adolescent farm workers.
3. Propose modifications to the STESAF intervention based on the pilot demonstration.

D. Methodology

Assess current safety practices - A descriptive survey research methodology was used to assess current and future hiring and safety practices related to teen workers. Results from 283 survey respondents from the National Council of Agricultural Employers (NCAE) and Washington Growers League (WGL) were compiled and interpreted in a benchmarking report. The benchmarking report was published as an NCCRAHS document, distributed to NCAE and WGL members, and made available online.



Pilot test - A training intervention was conducted with 17 growers in the state of Washington. Nineteen STESAF tips sheets were developed. Two intervention workshops were presented in February 2005 in Bellingham, WA, and Yakima, WA. Nineteen one- and two-page tip sheets were provided to participating 17 growers monthly from April 2005 through September 2005 as a continuing part of the intervention. Samples of tinted safety glasses for outdoor use (two pairs each of 16 different styles) were sent to growers in June 2005, for trial use by adolescent workers. Samples of hearing protection (six styles of ear plugs, approximately 700 count total) were sent to growers in August 2005, for trial use by adolescent workers.

E. Results

Aim 1. Employer's practices – Practices were assessed and a fully illustrated report with all findings was published and mailed to all members of the NCAE in 2004. A manuscript about the benchmarking report was prepared and submitted to the Journal of Agricultural Safety and Health (JASH). A presentation on the benchmarking report was made at the National Institute for Farm Safety (NIFS) annual conference in June 2005 in Wintergreen, VA, and a technical paper written for the conference proceedings.

Aim 2. Pilot test – Training was tested with 17 growers during intervention workshops and one on-site visit. Nineteen STESAF tips sheets were developed. It was determined that high quality resources, based on NAGCAT would be relevant for future interventions.

Aim 3. Modify intervention - Results of the pilot test indicated substantial changes in the approach were warranted. To meet that need a new proposal for intervention testing was submitted and awarded via the next Center application for a five-year project.

F. Discussion

The process of garnering support from the National Council of Agricultural Employers (NCAE) and the Washington Growers League (WGL) was time-consuming but yielded valuable partners within industry. This partnership allowed us to access front-line supervisors, human resource personnel and employer/owners of growers, largely representing tree-fruits and nuts. The eventual publication of the Benchmarking Report was a demonstration of our commitment to young workers and resulted on an ongoing working relationship with both NCAE and WGL. This activity led to the development of resources based on NAGCAT that would be useful for employers. The next phase of this project is described as "Safety Guidelines for Hired Adolescent Farm workers (SaGHAF).

G. Conclusions

The first phase of this project was successful in garnering information on hiring and safety practices of agricultural employers and field supervisors. The relationships and partnerships developed in the process lead to expansion of the intervention and the addition of new partners.

VI. (Project E.1) Scientific Report

A. Project Title: Best Practices Recommendations Safety Guidelines for Hired Adolescent Farm Workers (SaGHAF)

B. Background

The North American Guidelines for Children's Agricultural Tasks (NAGCAT) were released in 1999 as a resource to assist parents in assigning farm jobs to their children 7 - 16 years of age, on family farms. Since that time, these guidelines have been proven to reduce the risk of agricultural injuries among family farm children by 50%. The NAGCAT were not intended for use in employment situations because they do not incorporate child labor regulations; nor do they reference the Hazardous Occupations Orders in Agriculture which restrict specific tasks in youth employment. Our project was undertaken to address the gap in resources for employers who hire adolescents for agricultural work.

In early 2007 a project team initiated the development of *Safety Guidelines for Hired Adolescent Farm Workers* at the request of employers who liked the NAGCAT posters, but requested more relevant resources, including information on child labor regulations.

C. Specific Aims (SaGHAF)

The ultimate goal of this endeavor is to reduce the incidence of workplace injuries and fatalities to hired adolescent farm workers.

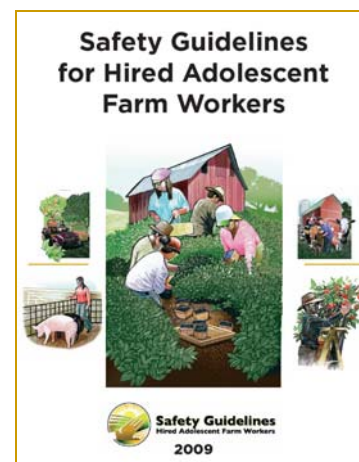
1. Develop a user friendly resource based on NAGCAT principles and the latest data on childhood injury with addition of federal labor laws for use by agricultural employers/supervisors.
2. Solicit feedback on resource from employers, supervisors and adolescent farm workers.
3. Develop a packaging system for distribution that will optimize the adoption of the resource by employers and supervisors of hired adolescent workers.

D. Methodology

Over a 10 month period, the project team reviewed NAGCAT for tasks pertaining to youth hired to work in agriculture. Only jobs for which adolescents are legally eligible for hire were included. Stakeholder input was gathered to identify the most common agricultural tasks for which adolescents are employed and NIOSH Child Agricultural Injury Surveillance data were reviewed to identify relevant tasks and major hazards for inclusion in the core content. Guidelines were drafted based on the original NAGCAT child development principles. Content from NAGCAT resources was updated to reflect prevailing working conditions (e.g., cell phones for emergency communications). Illustrations were sketched by an independent artist then subjected to multiple revisions per team recommendations for accuracy and diversity. During January to April 2008 content and format was reviewed by peers, employers/supervisors, and annual meetings of west coast growers with labor-intensive crops.

E. Results

Aim 1. Develop new resource - Seven guidelines are now available in English and Spanish: 1) Characteristics of Adolescent Workers; 2) Working Outdoors; 3) Harvesting Tree Fruit and Climbing a Ladder; 4) Basic Tractor Operations; 5) Working with Large Animals; 6) Working with Utility Vehicles; and 7) Hand Harvesting Fruit and Vegetables. Each colorful, illustrated poster addresses supervisor responsibilities for ensuring work conditions are appropriate and adequate (e.g. safety devices in place, safe transportation to fields) and for assessing their teen workers (e.g. worker can operate vehicle controls, can lift and carry 15% of body weight). Training and supervision tips, specific to teens and to each job, are provided. Each poster includes illustrations of three main hazards and three points to remember for quick reference. Finally, each poster includes pertinent federal regulations and referrals to obtain state-specific child labor regulations.



Aim 2. Solicit feedback - Minimal action has been taken; however, this aim is included in a newly funded intervention.

Aim 3. Develop a packaging system for distribution - Two new options are now available for distributing this training program. First, a booklet of all English and Spanish posters with training instructions is bound with a CD to allow trainers to print out posters on large poster boards if desired. Second, a subcontract was developed with Kent Anger, PhD, to use the C-train system of computer-based training relative to this information. The C-train curriculum is anticipated for completion in early 2010.

Presentations

Safety guidelines for hired adolescent farm workers. 136th APHA Annual Meeting & Exposition. San Diego, CA, October 25-29, 2008.

Development of safety guidelines for hired adolescent farm workers. 6th International Symposium: Public Health and the Agricultural Rural Ecosystem. Saskatoon, SK, CA. October 21-23, 2008.

Development of Safety Guidelines for Hired Adolescent Farm Workers. National Institute for Farm Safety, Inc. Lancaster, PA, June 25, 2008.

F. Discussion

The new Safety Guidelines for Hired Adolescent Farm Workers will be a useful outreach tool for farm safety professionals and child labor advisors. Work experiences can be valuable and rewarding for adolescents, and these resources are intended to clarify labor regulations while providing employers with simple tips for enhancing the safety training and supervision of their teen workers. An intervention to test the usability of these guidelines among field supervisors is now underway (funded in the 2008 – 2013 Center).

VI. (Project E.2) Scientific Report

A. Project Title: Best Practices Recommendations Safe Play Areas on Farms

B. Background

A specific approach to promote the principles of safe play areas on farms where children might be exposed to agricultural hazards was proposed. Resources have been developed for stakeholders (agricultural business, farm organizations, health care facilities, youth serving groups, media, and others) to encourage agricultural producers to adopt the Safe Play Areas concept on their agricultural sites.

C. Specific Aims

1. Ensure the public has ready access to core content of *Creating Safe Play Areas on Farms*.
2. Ensure professionals have ready access and training opportunities for *Creating Safe Play Areas on Farms*.
3. Identify key strategies for stakeholders to encourage adoption and development of safe play areas on farms by farm owners.
4. Work with agribusiness, farm media, Childhood Agricultural Safety Network members, international leaders, and others to implement selected strategies that motivate adoption of safe play concepts and principles on farms.
5. Track the process and outcomes of key aspects of this project.
6. Create timely resources and materials for distribution to stakeholders.

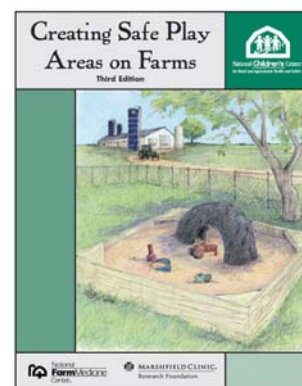
D. Methodology and Results

Aim 1. Public access to content - The *Creating Safe Play Areas on Farms* publication is freely available to the public on our designated website:

<http://www.marshfieldclinic.org/safeplay/> or by emailing or calling our Center.

Aim 2. Training opportunities - Professionals have access to training or promotional materials including our publication, table top and bulletin displays, power point presentations and fact sheets by contacting our Center.

Safety Day Camps for youth have often had an adjunct program for parents that promoted fenced, supervised play areas and organizations such as Farm Safety 4 Just Kids, Cooperative Extension, and the National Education Center for Ag Safety (NECAS) have demonstrated how to conduct play areas at community events. The farm press has picked up on this concept in trade journals and newspapers and several national farm organizations have featured this topic at annual conventions. Our Center continues to build on this concept using marketing techniques and research intervention projects. In 2005, we provided an interactive safe play area demonstration at the Wisconsin Farm Technology Days. A play site was constructed to scale that included models of proper fencing, ground cover, and play structures. A survey of participants was conducted to determine the effectiveness of this demonstration, and identify barriers to creating safe play areas on farms.



Aim 3. Promotion and adoption - Our Center implemented a local social marketing strategy by creating Safe Play Areas advertisement cards to be inserted in milk checks for over 1,600 farmer owners. We also surveyed farm parents at the Wisconsin Farm Technology Days. Results revealed that over half of the respondents stated that their children do not have access to designated safe play areas. When asked what would be the most helpful towards creating a safe play area, the majority responded that the cost of a play area was a deterrent, followed by lacking step-by-step instructions on how to create one. NCCRAHS developed a new user friendly website entitled "Keys to Creating a Safe Play Area" to address the need for basic elements required to create a safe play area: http://marshfieldclinic.org/nfmc/pages/default.aspx?page=nccrahs_safeplay_keys . This resource is a tool for farm parents/owners interested in creating a safe play area for children. It addresses four key elements that are needed: location, protective barriers, play equipment, and ground surfacing. The site offers guidelines, recommendations and examples. The website was promoted through numerous organizational sites (i.e. USDA, NIOSH, and University of California-Davis). Other organizations have promoted and linked to the site including state farm bureaus.

Aim 4. Network with other organizations to promote safe play areas - Our Center worked with the Shawano County WI Rural Health Initiative to provide Safe Play Area materials to 1000 farm families through annual health risk assessments. Farmers that did not have a play area for their minor children were provided with education and materials which included the *Creating Safe Play Areas on Farms* booklet and selected handouts on ground surfacing, fencing and play equipment.

NCCRAHS consulted with Manitoba Canada's Healthy Living, Manitoba Agriculture, Food and Rural Initiatives and Manitoba Labour and Immigration for their provincial-funded 2007 Farm and Safety Campaign to provide 100 (\$500.00) grants to family farm owners for creating a Safe Play Area on their property. We also consulted with The Farm Safety Association who implemented a province-wide \$50,000 Safe Play Area Grant Summer Program in Ontario Canada which was modeled after the Manitoba Safe Play Area grant program.

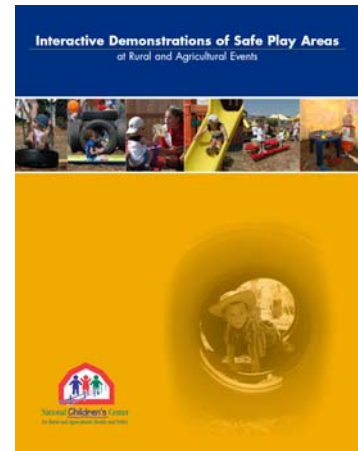
We provided expertise and assistance to nurses from the University of Wisconsin-Oshkosh Family Nurse Practitioner Program for mini-grant feasibility study for Safe Play Areas and Rural Childcare Assessment. The purpose of this project was to perform a pilot study to identify farm family perceptions and barriers to creating safe play areas and rural childcare. Previous research had identified appropriate rural childcare and safe play areas as priority interventions needed to decrease childhood agricultural injuries. A two page Safe Play survey was developed and administered at events such as the World Dairy Expo Madison, WI.

Our Center provided assistance to the New York Center for Agricultural Medicine & Health (NYCAMH) for a Center sponsored safe play demonstration at Empire Farm Days held in Seneca Falls, New York, August 7-9, 2007. NYCAMH reported contact with over 200 farm families.

Aim 5. Track Process and Outcomes - Process and outcomes were tracked monthly by the NCCRAHS benchmark metrics.

Aim 6. Create Timely Resources - Staff worked with stakeholder groups to create a professional resource manual for the development of interactive safe play area demonstrations. Resource included information on rules, hazards, proper fencing, recommended groundcover, play structures, how to evaluate a demonstration, and additional concerns.

Our Center developed an excerpted version (10 of 29 pages) of the *Creating Safe Play Areas on Farms* specific for the media in 2007. This version highlighted the media's role to motivate farm owners and parents to adopt Safe Play Areas. This excerpt was included in the *Children and Agriculture: Telling the Story* manual and used for the fourth and fifth annual Journalists' Workshop. This resource will continue to be used and distributed through outreach events such as the National Association for Farm Broadcasters and the Agricultural Media Summit.



NCCRAHS continued to update the *Creating Safe Play Areas on Farms* booklet with a new fence diagram, contact information, resources, and websites in 2008.

E. Other Outcomes **Presentations**

"Strategies for Promoting Safe Play Areas on Farms for Children" Institute for Farm Safety Conference, June 27, 2005

Abstract submitted and accepted to National Institute for Farm Safety Conference
"Interactive Safe Play Area Demonstrations at Rural and Agricultural events: Measures for Success" Sheboygan, WI June 2006

Abstract submitted and accepted to National Institute for Farm Safety Conference
"Reasons Influencing Creation of Safe Play Areas on Farms" Penticton, BC June 2007

"Factors Influencing Creation of Safe Play Areas on Farms" National Institute for Farm Safety Conference, Penticton, British Columbia, Canada, June 25, 2007.

Publications

Safe Play Areas on Farms Mailer, 2004

Safe Play Areas on Farms Bookmarks, 2004

Esser N, Heiberger S, and Lee B. Creating Safe Play Areas on Farms. Booklet. Marshfield, WI: Marshfield Clinic (Reprint, 2005)

Fisher RM and Lee BC (2006). Interactive Demonstrations of Safe Play Areas. Marshfield, WI: Marshfield Clinic.

Safe Play Areas on Farms bulletin board display, 2006

Safe Play Areas on Farms check-stuffer, 2006

Lee, BC, Fisher, R, Westaby, JD (2007). Reasons Influencing Creation of Safe Play Areas on Farms. National Institute for Farm Safety Conference. Penticton, BC. Published abstract.

Does Your Child's Play Area Measure Up? rulers, 2008

Education/Training/Outreach

Interactive Safe Play Areas Demonstration at Agricultural Event: Wisconsin Farm Technology Days, July 12-14, 2005

Technical Assistance and Resources

112 Technical assistance requests were handled

10443 Copies of *Creating Safe Play Areas on Farms* disseminated

848 Other creating safe play area resources (i.e. bookmarks, rulers, mail stuffers) disseminated

Website

"Keys to Creating Safe Play Areas" can be viewed at:

http://marshfieldclinic.org/nfmc/pages/default.aspx?page=nccrahs_safeplay_keys. This site provides resources for selecting an area for safe play; child protective barriers; play equipment; and proper ground surfacing. It is the one of the NCCRAHS' most popular websites.

F. Discussion

The high volume of web traffic on the new "Keys to Building a Safe Play Area" website has confirmed that there is considerable interest in what is needed to build a safe play area for children on the farm. NCCRAHS will be working to improve that site with web based functionality for farm parents to quickly and easily obtain the information needed to create or improve on a safe play area for their children.

G. Conclusions

All specific aims for this project were achieved. The emphasis on safe play areas (where off-site child care is not an option) has maintained a high profile in the agricultural media and among farm safety groups.

VI. (Project E.3) Scientific Report

A. Project Title: Best Practices Recommendations Agritourism Health and Safety

B. Background

The purpose of the project was to establish agricultural tourism health and safety guidelines specific to children, for farm operations involved in agricultural tourism enterprises. Agritourism is defined as "the act of visiting a working farm or any agricultural, horticultural, or agribusiness operation for the purpose of enjoyment, education, or active involvement in the activities of the farm." The guidelines will be appropriate for long term agritourism operations, farmers who would entertain a one-time event such as a farm tour for school children, a farmer who is considering adding an agritourism component to an existing farm, or a new farmer. The guidelines are intended to help farm owners and agritourism operators identify and reduce health and safety hazards found on their farms.

C. Specific Aims

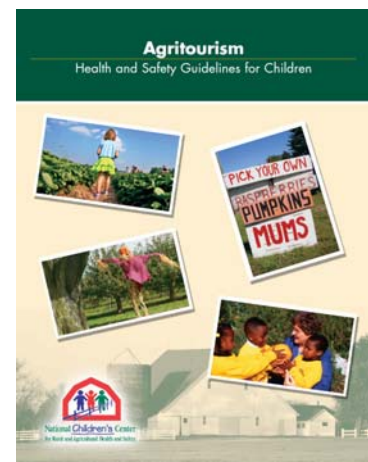
1. Develop a peer reviewed user-friendly resource to fill the need for agritourism health and safety information to help owners identify hazards on the farm.
2. Disseminate the agritourism resource to the private and public sector.
3. Design a website with agritourism information and resources.
4. Increase farm owners' and agritourism operators' knowledge of children's developmental characteristics and suggest appropriate safety strategies to protect them.
5. Put agritourism health and safety resources into practice at agritourism sites.
6. Eliminate/reduce health and safety hazards to children at agritourism sites.
7. Decrease incidence of illness and injury among children visiting agritourism operations.

D. Methodology and Results

Aim 1. Develop resource - A peer reviewed (by project advisors and a technical team) user-friendly, easy to understand resource was developed to fill the need for agritourism health and safety information to help owners identify hazards using convenient checklists on the farm.

Aim 2. Disseminate resources - In January 2007 we released the first printing of 500 *Agritourism Health and Safety Guidelines for Children*. We disseminated a press release to newspapers, journals, magazines, past NCCRAHS Journalists' Workshop attendees and list servers including: USDA, NIOSH, Safety News and Notes, NIFS, and University of California-Davis. We contacted agritourism conference organizers, including: North American Farmers Direct Marketing Association, WI Fruit and Berry Growers Association, WI Governor's Conference on Tourism, and the American Emu Association to disseminate guidelines at their conferences.

Staff disseminated over 4990 *Agritourism Health and Safety Guidelines for Children* throughout the United States, Canada, Australia, Sweden and the UK which filled the need for health and safety information to help agritourism operators identify hazards using convenient checklists on the farm. We continue to send press releases to list servers to disseminate agritourism health and safety during the Fall Harvest seasons.



Staff provided interviews about childhood health and safety in agritourism at the National Association of Farm Broadcasters meeting in November 2007 to Maverick Media, South Dakota Broadcasters Association, Learfield Communications, USDA Broadcast Media Center, Living the Country Life, MN Farm Network, MI Farm Radio Network, Agribusiness Network, Purdue University, University of IL Ag Communications, Agri-Radio Networks, and Citadel Broadcasting Company.

Aim 3. Design and launch website - Our Center launched website page: <http://www.marshfieldclinic.org/agritourism> which included a link to the *Agritourism Health and Safety Guidelines for Children* booklet from the NCCRAHS website in Jan 2007. This Agricultural Tourism page has been one of the top 2 most popular sites on the NCCRAHS website since January 2007.

Aim 4. Increase farm owners' knowledge. No specific action was taken to measure knowledge gain.

Aim 5. Place resources at agritourism operations. *Agritourism Health and Safety Guidelines for Children* were disseminated at these conferences: North American Farmers Direct Marketing Association, Illinois Specialty Crops and Agritourism Conference, Midwest Organic Production and Marketing Conference, National Association of Farm Broadcasters Trade Talk in Kansas City, Nebraska Governor's Agri/Eco-Tourism Workshop, Agritourism: Cultivating Farm Revenue Tennessee Agritourism Conference; Visit Iowa Farms Conference, Virginia Agritourism Conference; WI Governor's Conference on Tourism, and the American Emu Association Conference.

Aim 6. Eliminate hazards at agritourism sites. With full support from agritourism operators, a set of checklists for company policies and on-site inspections were drafted, reviewed and finalized. These printed checklists are available upon request and downloadable from our website.

E. Other Results

Results from this "best practices" endeavor yielded a guideline document that was generated through a team approach, two accompanying checklists, and the following presentations, publications and technical assistance:

1. Presentations

"Children's Health and Safety Guidelines for Agritourism Operations". WI Fruit and Berry Growers Association. Oconomowoc, WI, January 2007

"Taking for Granted the Safety of Your Youngest Visitors". North American Farmers Direct Marketing Association Annual Meeting. WI Dells, WI, February 2008

"Agritourism Health and Safety for Children". Children and Agriculture: Telling the Story of Hazards and Injury Prevention, Journalists' Workshop, Texarkana, TX, June 2008

2. Publications

Humann, M.J. and Lee, B.C. (2007). *Agritourism Health and Safety Guidelines for Children*. Marshfield, WI: Marshfield Clinic.

National Children's Center for Rural and Agricultural Health and Safety. (2008) *Policies and Procedures Guide: Supplement A to Agritourism Health and Safety Guidelines for Children*. Marshfield, WI: Marshfield Clinic. Available at <http://www.marshfieldclinic.org/agritourism>

National Children's Center for Rural and Agricultural Health and Safety. (2008) *Worksite Guide: Supplement B to Agritourism Health and Safety Guidelines for Children*. Marshfield, WI: Marshfield Clinic. Available at <http://www.marshfieldclinic.org/agritourism>.

3. Technical Assistance

77 Technical assistance inquiries have been handled.

4990 copies of *Agritourism Health and Safety Guidelines for Children* have been disseminated.

50 copies of each *Policies and Procedures Guide* and *Worksite Guide for Agritourism* have been disseminated.

VI. (Project E.4) Scientific Report

A. Project Title: Best Practices Recommendations for effective use and future applications for the North American Guidelines for Children's Agricultural Tasks

B. Background

The North American Guidelines for Children's Agricultural Tasks (NAGCAT) are a safety resource created to assist parents in selecting safe work for their children 7-16 years of age. Since their release in 1999, a growing body of scientific evidence has accumulated regarding NAGCAT.

C. Specific Aims

The purpose of this project was to assess the current scientific and programmatic evidence regarding the efficacy and utilization of the NAGCAT resource in order to determine the priorities for the next five years.

D. Methodology

We employed a systematic, evidenced-based method to accomplish the project objectives. Our data sources included results from a survey of agricultural safety practitioners and researchers, a comprehensive assessment of the peer-reviewed literature, and recommendations from a priority-setting meeting.

E. Results

Five main priorities were identified: (1) address the perceptions and barriers associated with the use and non-use of the NAGCAT resource, (2) revise and re-format a core set of the guidelines, (3) develop a NAGCAT resource dissemination/marketing plan, (4) provide training and support for agricultural safety professionals and parents using NAGCAT, and (5) conduct further research to facilitate accomplishing these priorities.

F. Discussion

Injuries involving children engaged in farm work are an important component of the pediatric agricultural injury problem. In the absence of work standards for farm youth, NAGCAT can serve as an important injury prevention resource. Within this context, we were able to set priorities using empirical evidence to guide future research and practice involving the NAGCAT resource. While NAGCAT have the potential to prevent the most serious work-related injuries experienced by children in the correct age range (7-16 years of age), the majority of pediatric agricultural injuries occur to non-working children and children younger than 7 years of age. Thus, strategies must be developed that build upon, yet also go beyond NAGCAT, to target the leading causes of pediatric farm injury.

G. Conclusions

This assessment and priority identification process was successful in outlining the next steps for the NAGCAT resource. As we move toward 2010, those involved in pediatric agricultural injury prevention will have a blueprint to ensure that NAGCAT are an effective and widely used resource for preventing work-related injuries.

VI. (Project E.5) Scientific Report

A. Project Title: Best Practices State Regulations for Youth Operating Tractors on Public Roads

B. Background

Driving farm tractors on highways is hazardous for youth due to the large speed differential between motor vehicles and agricultural vehicles, as well as recent increases in traffic volume on many rural roads. In 1994, the state of Wisconsin enacted legislation requiring youth who operate farm tractors on highways to complete a tractor and machinery certification course. We were interested in finding out whether other states have similar requirements.

C. Specific Aims

The purpose of this project was to collect and summarize state laws regulating youth who operate farm tractors on highways in the U.S.

D. Methodology

A systematic method was used that included an initial Lexis-Nexis™ database search followed by Internet searches in combination with follow-up email and telephone communications when missing or unclear results were obtained.

E. Results

The findings show that 14 states have legislation addressing youth who operate farm tractors on highways. The content of these statutes varies, but includes driver's license or educational requirements, as well as regulations concerning the ages, locations, and/or times of day when youth may drive farm machinery on highways.

F. Discussion

Agricultural safety professionals can use this information to develop and target outreach programming aimed at preventing highway tractor crashes.

G. Conclusions

The majority of U.S. states (43) do not require those operating farm tractors on highways to have a state-issued motor vehicle driver's license. These findings, however, do not

indicate whether one statute has been more successful than another in preventing youth tractor highway crashes. Future research should focus on evaluating the effectiveness of different states' legislation in reducing the number of youth tractor crashes occurring on highways.

VI. (Project F) Scientific Report

A. Project Title: National Ag Safety Database Update

B. Background

The original goal of this project was to establish the “child safety” section of National Agricultural Safety Database (NASD) as the most comprehensive repository for public and professional education materials related to prevention of childhood agricultural diseases and injury. NASD is a central repository of agricultural health, safety, and injury prevention materials for agricultural health and safety professionals and the agricultural community. From 2003 – 2005 this project followed the methodology as described in the original aims. In FY 2006, the project staff became aware of limitations to implementing the recommendations to the NASD. Therefore NCCRAHS developed an alternate course of action, by creating a Childhood Agricultural Health and Safety "Recommend Resource" webpage under the NCCRAHS site for a repository of resources. The Childhood Agricultural Health and Safety *Recommended Resources* webpage project is a continuation and modification of the original (2003) National Ag Safety Database (NASD) review and update.

C. Specific Aims

Original

1. Establish reference criteria for assessing the quality, timeliness and suitability of resources for the child safety section of NASD.
2. Apply the new inclusion/exclusion criteria to the child safety resources currently on NASD; removing resources that do not meet acceptable criteria
3. Actively seek out new and revised resources that meet inclusion criteria.
4. Conduct regularly scheduled upgrades to the NASD child safety topic section including modifications based on industry trends, customer requests and feedback, and relevant emerging issues bearing implications for children in agriculture.
5. Provide recommendations for modifying other NASD topic sections based on our experience with this project.

Modified

1. *Establish and maintain a web-based collection of childhood agricultural health and safety resources (educational materials, fact sheets, child labor laws in agriculture and links) for health and safety professionals, educators, and parents.*
2. *Post on the NCCRAHS webpage, high quality childhood agricultural health and safety resources as determined by the project team.*
3. *Develop a process to maintain and update the website with the most current and relevant childhood agricultural health and safety resources.*

D. Methodology and Results

Aim 1. Establish reference criteria - Individual resources were identified, reviewed and analyzed by the Project Review Team. Reference criteria included: a) pertain to childhood agricultural or environmental health and safety issues relevant to rural and agricultural populations; b) present generally correct, factual information; c) have content that is clear and understandable; d) have good overall format quality. Categories of public education & training resources were developed as determined by their importance to the public, for health and safety professionals, educators, and parents for childhood agricultural health and safety; including: a) Agritourism and Rural Recreation; b) Childhood Agricultural Injury Data and Labor Regulations; c) Childhood Agricultural Work (Non-regulatory); d) General Childhood Agricultural Safety; e) Play/Non-Work Related Safety; f) Spanish Language Resources; g) Other; and h) Internet Links

Aim 2. Apply inclusion/exclusion criteria - A project team of U.S. and Canadian farm safety and child safety specialists were involved in the systematic review, scoring and discussion of resources. Teleconferences were convened to garner consensus of resources that did not clearly fit the criteria. Recommendations for keep, delete, modify were applied to all current NASD resources on the selected topics. Materials that met the listed criteria and were approved by team consensus were then earmarked for inclusion on the website.

Aim 3. Seek out new and revised resources - Recommendations from the project team were documented and submitted to the NASD administrator. Additionally, suggestions were submitted regarding the need to update select resources for which alternates did not exist. The project director submitted recommendations in writing to the NASD administrator. For a final meeting of the project team, the NASD administrator joined the group via teleconference call. After nearly 20 months of no changes on the NASD website, the NASD Administrator conceded it would not be possible to make the recommended changes to the child agricultural safety materials on NASD.

Revised Aim 1. Establish and maintain web-based resources - Given the decision by NASD Administrator to not act upon recommendations from the project team, an alternate strategy was adopted. High quality childhood agricultural health and safety resources were selected by NCCRAHS staff

Revised Aim 2. Post resources on NCCRAHS website - Our Center staff posted resources developed by our Center and other safety professionals on the NCCRAHS webpage, ensuring that all critical topics were included. The new website page was loaded in April 2007 http://www.marshfieldclinic.org/nccrahs/?page=nccrahs_resources. The page was designed to promote ease of use for individuals searching for relevant and timely childhood agricultural health and safety resources. This website gave us the ability to update, evaluate, and post new resources in a timely manner.

Revised Aim 3. Maintain and update - The *Recommended Resources* website is reviewed every 6 months for additional inclusions to contain the most current and relevant childhood health and safety resources and to review outdated resources for removal. It continues to serve its desired purpose and is credited in reducing staff time in responding to technical assistance inquiries.

F. Discussion

The Recommended Resource website is a valuable tool to share with other educators who are seeking information, handouts or other materials addressing childhood health and safety for educational purposes and outreach events. This resource is expected to benefit local, state, regional, national and international audiences that are frequently in search of childhood agricultural disease and injury prevention resources.

G. Conclusions

The new website has reduced the need for resource mailings. The website link can be shared via email making the Center's valued resources easily downloadable to be copied for various educational outreach events.

VI. (Project G) Scientific Report

A. Project Title: Childhood Agricultural Safety Workshop for Journalists

B. Background

The media remain a constant source of news and information for the agricultural community. Minimal attention is generally given to childhood farm health and safety issues in the media. When coverage is provided, it is often after a horrific event or to unwittingly promote safety approaches and roles of children that are deemed unsafe or inappropriate by safety professionals.

The overall goal of this project is to increase the quantity and improve the quality of media coverage regarding children and agriculture. Journalists compete for selection to the workshop by submitting samples of their work. The annual 1.5 day immersion is designed to help journalists become knowledgeable about the issues and opportunities related to children's work and play on our nation's farms and ranches. Journalists develop local and regional stories in agricultural health and safety topics of importance for all children and families in agriculture regardless of farm ownership. Ultimately, we hope to see a notable increase in the type, number, and context of media coverage in print, radio, and television of children's issues in agriculture.

C. Specific Aims

1. Plan, implement, and evaluate an annual 1.5 day regional "hands-on" workshop for ten journalists (sites will rotate to all regions of the United States over five years).
2. Develop and refine the training model and materials for distribution and integration into ongoing media training.

D. Methodology

Plan the workshop - A site is chosen and a regional NIOSH funded Agricultural Center is invited to co-host the workshop. The workshop is promoted by newsletters and journalism organizations. A dedicated website contains workshop information and an application to participate. Journalists apply to attend the workshop by sending a cover letter, resume, and samples of their work. Mini-lectures, panel discussions, one-on-one interviews, and field trips to educate journalists on current agricultural issues such as unsafe work traditions and hazardous exposure to children are planned. Faculty is chosen to include farmers and experts from the media, safety, health, agriculture, and child development.

Implement the workshop - Five workshops have been held for up to 12 journalists for the purpose of increasing the frequency and depth of media reports regarding childhood agricultural health and safety. Each workshop has consisted of: 1) Mini-lectures delivered by faculty that included farmers and ranchers, health and safety professionals, researchers, media representatives, and local issue faculty; 2) Roundtable discussions featuring professionals with expertise in occupational and emergency medicine, child protection services, agricultural engineering, occupational safety investigation, child advocacy, childhood injury prevention, and child development; 3) Field trips that provided a “living classroom” and allowed journalists to interact with farm families with children at various developmental stages in their home and work environments; and 4) Formative evaluation to highlight sections of the Journalists’ Workshop that needed fine-tuning to improve the overall quality of the program.

Evaluate the workshop - Feedback regarding the workshop experience was obtained using surveys with Likert scale and open-ended questions at the conclusion of the workshop. Open dialog from participants at the closing session of each workshop allowed for additional feedback on the experience along with recommendations for future workshops. Comments from journalist participants, as well as faculty and guest speakers, were noted. Six months following the workshop, telephone interviews were conducted with journalist participants. Evaluation results were reviewed with the workshop project leaders. This information provided the basis for planning the subsequent year’s workshop.

Develop and refine training model - In 2008, *Agricultural Safety and Health Workshops for Journalists: Strategies that Work* was published outlining the methods and evaluation necessary for a successful and beneficial journalists’ workshop.

E. Results

Aim 1. Plan, implement, and evaluate the workshop -2004: The inaugural workshop was held in Marshfield, WI. The roundtable discussion and field trips were the two most valuable parts of the workshop according to the journalist participants. Those two components became pillars of future workshops. One of the objectives was to establish a workshop model that could be replicated in different geographic locations and by other organizations. The focus was on keeping children safe at work and at play on farms where the line between work and home is often blurred. One radio and nine print journalists represented a mix of national, regional and local media outlets. In the six months following the workshop, the nine journalists who participated in the evaluation attributed a total of 53 stories to their participation in the workshop.

2005: The workshop was co-hosted by the New York Center for Agricultural Medicine and Health (NYCAMH) in Cooperstown, NY, an area dominated by small- to mid-sized dairy farms. Four Canadian journalists took part. All 10 journalists represented print media, and nine of them were from agricultural publications. In the six months following the workshop, the nine journalists who participated in the evaluation attributed a total of 47 stories to their participation in the workshop.

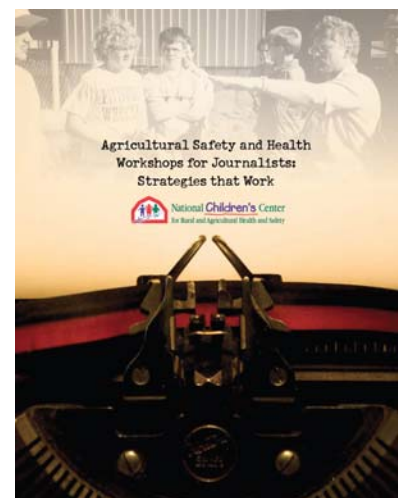
2006: The workshop was convened in Wenatchee, WA, co-hosted by the Pacific Northwest Agricultural Safety and Health (PNASH) center at the University of Washington. The 2006 workshop examined environmental health hazards such as pesticides, and the importance of adequate farm worker housing from a health and safety perspective. Participants represented a mix of both agricultural and mainstream media outlets, including a Seattle public television station and a regional public radio network. For the first time, the majority of media outlets (six out of nine) were non-agricultural.

2007: The fourth workshop visited central Kentucky, near Harrodsburg. It was co-hosted by three units of the University of Kentucky – the Southeast Center for Agricultural Health and Injury Prevention, the College of Communications and Information Studies, and the Institute for Rural Journalism and Community Issues. The workshop focused on safety issues involving tractors and large animals. Co-facilitating the workshop was Al Cross, director of the Institute for Rural Journalism and Community Issues and longtime political columnist for the Louisville Courier-Journal. Eight of 10 media outlets in attendance were mainstream (non-agricultural), including the state's second-largest paper, the Lexington Herald-Leader.

2008: The fifth workshop was held in Texarkana, AR-TX June 5-6, 2008. It was co-hosted by the Southwest Center for Agricultural Health, Injury Prevention and Education. Twelve participants traveled from 11 states and Sweden to participate in this unique learning opportunity. The panel consisted of 13 faculty members. Tractors, livestock and migrant children were the main themes of this workshop.

Fifty-two journalists have “graduated” from the workshop. In 2007, NCCRAHS determined that each journalist produced an average of six stories as a result of their workshop participation. They represented a variety of media outlets, from small town weekly newspapers to national agricultural magazines. Past summaries of the journalists’ workshop can be found here on the Children’s Center website: http://www.marshfieldclinic.org/nccrahs/default.aspx?page=nccrahs_edu_and_train_journal_wkshp_welcome.

Aim 2. Develop and refine training model -
Agricultural Safety and Health Workshops for Journalists: Strategies that Work (Heiberger *et al.*, 2008), a 20-page resource which represents a compilation of outcomes and lessons learned to date from the Journalists’ Workshop was published. It provides proven strategies and useful suggestions for conducting workshops with members of the news media. Its intended audience includes organizations and government entities that want to improve journalistic coverage and enhance delivery of accurate safety and health messages to the public.



The document was designed so that the workshop blueprint can be adopted whole or in part, depending upon the host's needs. It includes tips on choosing a workshop site, planning an agenda, recruiting journalists and faculty, and evaluation. Appendices in the document lay out the workshop in easy-to-follow agendas and timelines, and provide "Pet Peeves" to which both journalists and health and safety professionals can relate and which further serve as learning tools. Also included is a Resources page featuring links to agricultural safety and health organizations, as well as associations of media professionals for recruiting purposes.

F. Discussion

These journalists have made a commitment to become childhood agricultural safety advocates and are encouraged to continue to interact with each other and the center after the event. As a result of the workshop and subsequent contacts, numerous childhood agricultural articles have been published in well-known regional and national farm publications.

As a result of the overwhelming success of the "Kids on Farms: Telling the Story", other national organizations have recognized the benefit of working directly with the media to promote safe agricultural practices. There are currently organizations seeking funding to develop journalist workshops to address other issues of agricultural health and safety.

H. Conclusions

A significant outcome of this program is the development of a cadre of journalists who understand the scope of the childhood agricultural injury problem, high-impact intervention, socially acceptable practices, and common misconceptions about safety. These journalists as a whole have elevated the level of discussion regarding the complexities of children's work and play.

The formative evaluation of the workshop over the past five years has allowed us to fine-tune the program based on journalists' and host committee feedback. Furthermore, evaluation data indicate that this workshop is valued by the journalists and has motivated increased coverage of issues related to childhood safety on farms.

VI. (Project G) Scientific Report

A. Project Title: Research: Youth Tractor Crashes on Public Roads

B. Background

In 1994, Wisconsin, United States enacted a state law aimed at reducing youth tractor crashes on public roads. Effective 1 July 1997, *Wisconsin Act 455 (Act 455)* prohibits any child younger than 16 years from operating a farm tractor on the highway unless the child has successfully completed a tractor certification course that is equivalent to the requirements under the federal child labor regulations. Wisconsin is the only state to pass such a law and the effectiveness of this regulation has not been formally evaluated.

C. Specific Aims

The overall goal of this research was to evaluate the effectiveness of *Act 455* by examining the pattern of tractor highway crashes involving youth operators. Our objectives were to (1) describe the characteristics of tractor crashes involving youth operators prior to and following enactment of *Act 455*, (2) examine the relationship between the contributing circumstances cited in the crash report and the content covered in the mandated tractor certification course, and (3) examine trends in crashes over time and their relationship to *Act 455*.

D. Methodology

This study employed a retrospective case series design. The primary data consisted of vehicle crash reports from the Wisconsin Department of Transportation during the years surrounding the introduction of *Act 455*.

E. Results

There was neither a significant change in the number of youth tractor crashes after the law was passed, nor any reduction in the proportion of crashes where the youth operator was designated at fault. The tractor certification course did not cover the major factors contributing to youth tractor crashes on public roads.

F. Discussion

Policy initiatives require compromise and it appears that in the case of *Act 455*, the negotiated compromise was the selection of a low priority problem coupled with an intervention that was palatable to farmers and cost-effective for policymakers.

G. Conclusions

No significant effect of the law was detected and crash rates at the end of the study period were similar to those prior to *Wisconsin Act 455*. Our findings do not suggest that public policy is an ineffective strategy for the prevention of pediatric agricultural injuries, but rather that this particular policy did not have a significant effect. Negotiating a balance in public policy debates will be a challenge, but it is clear that future policy initiatives need to identify and implement the right policy for the right problem.

VII. Publications

2003

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VIII. Inclusion of Gender and Minority Study Subjects

Not applicable.

IX. Inclusion of Children

Not applicable

X. Materials Available for Other Investigators

All original resources developed under this cooperative agreement have been published and available via the NCCRAHS website. Materials with illustrations, figures and photos include a Marshfield Clinic copyright but are available for use and adaptation by others with written permission. By request all resources are mailed to requestors. Large quantities of resources (e.g. request for 1,000 agritourism booklets) have been handled on a case-by-case basis, sometimes requiring the postage and shipping be covered by the requesting organization. In most cases, permission to print and package NCCRAHS materials is granted to the requestor.