The Community Benefits of Farm Safety Day Camps

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ABSTRACT. *In addition to the direct impact of a farm safety day camp on its participants' knowledge and safety awareness, there are extended and indirect effects that occur through the wider dispersion of information and the involvement and cooperation of community members. Reports completed by 228 coordinators of farm safety day camps, report forms completed by 5,037 volunteers at farm safety day camps, and telephone interviews with 924 parents of farm safety day camp participants were analyzed for evidence of the impact of the camps beyond the immediate knowledge gained by the children who participated. These data indicate that the indirect benefits to a community include enhanced safety awareness within the wider community as children and adult volunteers disseminate the information they learned, as well as enhanced community strength and cohesiveness resulting from the cooperation of many individuals and organizations in achieving a common goal.*

Keywords. *Community, Community development, Farm safety, Safety day camp, Safety education.*

Farming is unique among work settings in the level of risk exposure to children and youth. Their exposures to agricultural hazards and consequent injuries occur through play, work, and passive observation of adult work. In response to these dangers, communities offer a variety of educational programs to encourage safe practices among children. Farm safety day camps are an example of community–based interventions conducted for the prevention of childhood agricultural injury. Typically these camps are one–day events offered through schools or community organizations. In most camps, children move with small groups through a number of stations or sessions where they learn about specific safety topics in 10– to 20–minute presentations, over a four– to six–hour period. Farm safety day camps are attended by thousands of children in rural communities each year. The Progressive Agriculture Foundation, for example, sponsored over 275 camps in 2004, reaching over 45,000 children, and this is just one of a number of such programs in North America. Camps following similar models also are sponsored by organizations such as Extension Service, Future Farmers of America, 4–H, Farm Safety 4 Just Kids, Farm Bureau, hospitals, and other local groups and institutions. Farm safety day camps enjoy great support in agricultural communities, and even without a strong body of empirical evidence clearly demonstrating the effectiveness of the camps, more programs are started each year.

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As reviews of the research have indicated, empirical evaluations of farm safety education programs in general, and farm safety day camps in particular, are limited (DeRoo and Rautaianen, 2000; Hartling et al., 2004). They are often formative in nature, measure only short−term or intermediate outcomes, lack control or comparison groups, or have limited generalizability. Nevertheless, within these limitations, many such evaluations report increases in correct responses to knowledge questions, more safety−appropriate responses to attitude questions, and self−reported or intended changes in safety−related behaviors. In a recent study with a national sample involving 72 camps, 1,780 participants demonstrated significant increases in correct answers for knowledge questions and in self−reported safe behaviors from a pre−camp test to a three−month post−test questionnaire (McCallum et al., 2005a). These changes were consistent both for males and females, for farm residents and non−farm residents, and across all ages in the sample (8 to 13 years old). Safety−related improvements have been shown to persist up to a year after camp participation (Hughes and Hartley, 1999; McCallum et al., 2005b). As more rigorous evaluation research continues to be conducted, the direct impact of farm safety day camps and other educational programs on the participants will be clarified. There are, however, some additional effects on the community that are also worth investigating.

Although many of the farm safety day camp programs are similar and share a number of key characteristics (Steffen and Niedbalski, 1998), several of them, such as those sponsored by Progressive Agriculture Foundation and Farm Safety 4 Just Kids (FS4JK), are specifically designed to be community−initiated and community−based, thus enhancing the potential for community involvement. Within their communities, coordinators of Progressive Agriculture camps are encouraged to involve a wide array of community resources in the planning and implementation of their camps (Reynolds et al., 2002). In a similar fashion, FS4JK chapters are encouraged to seek out diverse individuals and organizations to complement each other in their work (Burgus, 2003). While the primary goal of the day camps is to reduce the risk of injury for the camp participants, within this model there is great potential for the camps to have a wider impact on the community. In fact, the extended and indirect effects that occur through community involvement, cooperation, and dispersion of information may be among the most positive outcomes of the camps. This wider impact is the subject of the current investigation.

In a qualitative assessment of farm safety day camp programs for children, Baker et al. (2001) used interviews with knowledgeable individuals, observations of farm safety day camps, and a review of the literature to learn about the overall strengths and weaknesses of these programs. The individuals who were interviewed included agricultural safety professionals, safety day camp coordinators, and rural youth injury prevention professionals. From the data gathered, Baker et al. (2001) reported five major strengths most frequently cited by their respondents. Three of these strengths are related to the impact that the camp can have on the community. First, is the ability of these programs to "bring a community together to work toward a common goal." According to the experts interviewed, the planning and implementation of the camps often brings together people and organizations that have not previously worked together. In addition, local businesses are involved as financial sponsors, or they provide volunteers to help organize and conduct the camp. Thus, the entire process of conducting the camp is an exercise that strengthens the community and builds social capital. Second, the day camp draws attention to agricultural safety, reminding people of the importance of safe practices to prevent injuries to children. Beyond the children who participate in the camp, the volunteers and parents who participate hear about safety issues, learn new information, or are reminded of safety concerns of which they already knew. Local media

also play a part in bringing attention to safety issues by advertising and reporting on the event. In turn, a dialogue is raised within the community that can lead to increased awareness and changes in current practices. Third, the respondents mentioned the fact that children who participate in the camp often talk to their parents later about the things they learned. Thus the information is disseminated to parents and other family members, and they are reminded of the importance of safety. In addition to these three community impacts, the respondents cited two other strengths that involve direct benefits to the children who participate in the camps: the children increase their knowledge about farm safety, and the camps are hands–on, interactive, and fun. Although very important, these two direct effects are addressed only briefly here. This report focuses primarily on the community impact, beyond direct benefits to the camp participants.

The current project explores the community impact of camps sponsored by one program, the *Progressive Farmer* Farm Safety Day Camp program (now named Progressive Agriculture Safety Day™), governed by the Progressive Agriculture Foundation. Participants in these one–day events engage in small–group, hands–on activities designed to teach them how they can stay safer on farms, on ranches, and in the home. Each camp is coordinated by a local volunteer who receives one and a half days of training for conducting a safe, educational, and fun day camp. The coordinator receives an in–depth manual written by farm safety experts from across North America. Approximately 20 safety lessons are provided in the manual on topics such as tractors, farm equipment, grain, chemicals, electricity, fires, and bicycles. In addition, the program provides free t–shirts, excess medical and liability insurance, publicity for the camps, and printed goodie bags to be filled with safety items by the local planners.

While the *Progressive Farmer* Farm Safety Day Camp program provides the basic resources and framework for setting up a camp, each camp is tailored to meet the needs of the local community. Thus, the key to the success of each camp is the dedication, organizational skills, and ability of the local coordinator and volunteers to utilize the resources available to them. They must structure the camp and select the topics that are most important for their community, and they are responsible for securing local volunteers to teach the lessons.

The current study is part of a larger multi–component project evaluating the camps in the *Progressive Farmer* Farm Safety Day Camp program. Data sources for the analysis were written reports from the local camp coordinators, written reports from the local volunteers who helped plan and conduct these camps, and telephone interviews in a three–month follow–up survey with parents of camp participants.

Method

All *Progressive Farmer* Farm Safety Day Camps held in 2002 were eligible for inclusion in the evaluation study. The coordinators for these camps were asked to complete a coordinator report form following their camp and distribute volunteer report forms to everyone who assisted with their camp. These forms were a standard part of the reporting procedures for the Progressive Agriculture Foundation, but they were revised slightly for this evaluation. Coordinators were also asked to complete a consent form giving permission for data from their camp to be included in the evaluation project. From the 253 eligible camps, 228 coordinators agreed to participate in the evaluation project and submitted a completed coordinator report form for their camp. These 228 camps, held in 34 states and one Canadian province, are the source of data for this report.

On their report forms, coordinators provided information about their camp, including the size of the camp, their prior experience with conducting camps, the number of

volunteers involved in the camp, the amount of time involved in planning and conducting the camp, the amount of support from local businesses and organizations, and the curriculum topics included. They also were asked to describe ways in which the local community benefited from the day camp.

In all camps, coordinators were asked to distribute report forms to all of their volunteers. The volunteers could return the anonymous report form to the coordinator, who bundled them and mailed them to the evaluation staff, or the volunteer could send the report form directly to the evaluators. A total of 5,037 completed volunteer report forms were received from 214 of the 228 participating camps. Approximately one–third of the volunteer respondents indicated they were less than 18 years of age, with the remaining two–thirds indicating they were adults. It is not possible to determine how many volunteer report forms were distributed by the coordinators, or even whether every coordinator distributed forms to their volunteers; thus, we cannot compute a response rate for these reports. On the report forms, volunteers indicated what role they had in conducting the camp, and they rated the camp and their volunteer experience in a number of areas. They were also asked to report any safety–related information they had learned while volunteering and any safety–related changes they planned to make at home.

The third source of data was a set of telephone interviews conducted with parents of camp participants. A representative sample of 28 camps was selected to provide data for this component of the evaluation project. In these 28 camps, a random sample of camp participants was selected for follow–up interviews with the child and the parent. To assess the impact of the camps, three–month follow–up interviews with the parents included ratings of the effectiveness of the camp and questions about safety–related changes made by the child, parents, or family as a result of the child's participation in the camp. This sample consisted of 927 parents who were interviewed for the three–month follow–up survey.

Results

Overview

Various characteristics of the camps as reported by the coordinators are presented in table 1. Camp coordinators reported having from 9 to 388 local volunteers, with an average of 61. Coordinators reported an average of 19 local businesses or organizations supporting the camp with donations or volunteers. Cash donations averaged $744 per camp (average donation was $972 if camps with no donations are omitted); estimated value for donated items averaged $914 ($980 if camps with no donations are omitted); and estimated total donations (cash + items) averaged $1,661. Summing across all camps, the total estimated cash donations were $168,090, and the total estimated value of items donated was $205,739; thus, the total estimated local contributions to these camps was nearly $375,000. It should be noted that these are local donations raised by the local coordinator or planning committee. They do not reflect donations made to the Progressive Agriculture Foundation by national sponsors of the program, although some of the national sponsors might have been located in a community where a camp is held.

New camps and new camp coordinators are added to the program each year, but there also are many communities and coordinators that participate year after year. On average, the camp coordinators in 2002 had experience with 4 to 5 prior camps, which is an indication of the value they see in this program and their interest in continuing it in their community. They were also unanimous in their recommendation of the program to other communities.

Table 1. Camp characteristics reported by coordinators.

	No. of Camps in Analysis	Mean	Median	Lowest	Highest
Camp Size					
Number of campers	228	173.16	119	13	1336
Number of participants in sessions for adults	15	33.80	35.5	2	125
Community Involvement					
Number of volunteers	215	60.92	50	9	388
Instructors	227	17.74	15	4	72
Group leaders	224	15.80	12	0	202
Planning committee	224	7.26	6	0	29
Safety committee	219	4.18	3	0	30
On–site logistics	223	17.06	11	0	200
Additional volunteers	200	12.04	8	0	150
No.of businesses/organizations providing support	219	19.12	15	0	92
Cash donations	173	$971.62	500	5	21,000
Value of donated items	210	$979.71	500	20	7,903
Total donations	225	$1,661.35	850	0 (n = 3)	21,000
Prior Camp Experience					
Prior camps in community	226	3.63	3	0 (n = 21)	18
Prior camps by this coordinator	223	3.22	2	0 (n = 22)	18
Prior camps where this coordinator assisted	201	1.54	1	0 (n = 94)	12
Total prior camp experiences for coordinator	201	4.74	4	0 (n = 14)	18
Coordinator Ratings				% Responding "Yes"	
Was coordinating the camp a rewarding experience?				100.0	
Were you generally pleased with your camp?				98.2	
Would you recommend organizing a camp to another community?				100.0	

Volunteer report forms were received from 5,037 individuals who served in a variety of roles, including instructors for the safety sessions, group leaders to move with the children throughout the day, planning committee members, safety committee members, and people who helped with on–site logistics and food on the day of the camp. Volunteers' ratings of the camps, presented in table 2, were very positive in all areas. Across all camps, over 80% of the volunteers said that they were given enough information to do their jobs effectively, camp participants were safe, topics were taught at age–appropriate levels, sessions involved fun learning activities, they could easily identify camper groups, their volunteer experience was rewarding, and they would like to help with a camp again. Approximately 71% of volunteers said the camp was "very effective" in teaching safety to children, and 76% rated the safety of the camp itself as "excellent." On each of the following characteristics approximately two–thirds of volunteers rated their camps "excellent": location, appropriateness of the setting for the number of campers, adequate staff for the number of campers, planning and organization, instruction, and scheduling. Most importantly for this analysis, 60% of volunteers said they had learned new safety information while volunteering, and 56% said they planned to make some safety changes at home. These percentages for learning something new and planning to make a change did not differ between youth and adult volunteers.

Interviews were completed with 927 parents or guardians of children who attended the 28 camps in the selected sample. In these interviews, 99.5% of the parents said they would recommend that other families send their children to a safety day camp like the one their child attended, and 97.8% said they would send their child to another safety day camp

if they had a chance. When asked to rate how effective the camp was in making their child safer, 57% of respondents rated the camp "very effective," 38% rated the camp "somewhat effective," and less than 2% said it was "not effective," while the remaining 3% said they did not know. Overall, therefore, these ratings indicate that the parents were very supportive and quite satisfied with the camp. Parents were asked three open–ended questions to determine the impact of the camp on behavioral changes. When asked, "Have you noticed any safety–related behavior changes your child has made since attending the safety camp?" approximately 47% of the parents identified a positive change in their child's behavior. In response to the question "Is there anything you could tell us that would show how the day camp helped make your child safer?" 57% gave a response. Finally, approximately 22% indicated a change in response to the question "Has your family made any changes due to what your child learned at camp?" These responses suggest that the camp participants were behaving more safely after attending the camp, and that the families of participants were involved in making safety–related changes as well.

How the Community Benefited: Coordinator Comments

Coordinators provided many comments concerning the ways in which their local communities benefited from the day camps. Of the 228 coordinators in the study, 211 (97%) responded to the question, "In what ways has your local community as a whole benefited from your day camp?" Not surprisingly, the categories emerging from the coordinators' comments correspond closely to the program strengths delineated by Baker et al. (2001): opportunities for community involvement and cooperation, increased

Table 2. Volunteer ratings.

Camp Ratings and Impact (214 camps)	% Responding "Yes"
Given enough information to do job effectively	91.6
Participants safe at all times	95.2
Topics taught at age–appropriate level	92.6
Sessions involved fun, active, hands–on learning	90.3
Could easily identify camper groups	85.1
Your role was a rewarding experience	93.5
Would like to help with camp next year	83.4
Learn any new safety information	66.3
Plan to make safety changes at home	66.7

Camp Ratings (214 camps)	% Giving Each Response			
	Very Effective	Somewhat Effective	Not Effective	Don't Know/ No Answer
How effective was the camp?	71.2	22.1	0.1	6.5
	Excellent	Good	Fair	Poor	Don't Know/ No Answer
Location	67.9	25.6	2.3	0.3	3.9
Appropriate setting	66.6	27.0	2.1	0.2	4.2
Adequate staff	68.8	24.7	2.0	0.2	4.4
Planning and organization	67.7	24.1	3.4	0.3	4.6
Food	50.1	30.1	6.0	1.2	12.5
Instruction	63.3	27.8	2.0	0.0	6.9
Scheduling	60.8	29.5	4.4	0.3	4.9
Safety	76.0	18.7	0.6	0.1	4.7

Table 3. In what ways has your local community as a whole benefited from your day camp?

Category	Frequency[a] No. of Comments	Frequency[a] % of Coordinators	Examples
Community cooperation	44	21	Proved to the community that by joining forces, anything is possible. The community works together to make this day a success.
Adults at camp become more aware of safety	33	16	Adults became more involved and participated with the children. Increased awareness in everyone involved – kids, parents, instructors, group leaders, volunteers, etc. – about farm safety.
General increased community awareness of safety	102	48	Heightened awareness of farm safety issues and increased knowledge of preventive measures. The entire community is more aware of safety issues and recognizes the importance of teaching kids to be safe.
Children become more aware of safety	93	44	Children learned how to be safer on the farm and ranch. Students recognize safety as being important.
Children tell others about safety	32	15	Because young children can be your best teachers. The children go home and tell mom and dad what they are doing wrong and how to correct it. The children have told their parents, grandparents, siblings, and friends about what they learned, so a lot of people have benefited from it.
General enjoyment or support for camp	12	6	Many parents and grandparents said "thank you" for the subjects taught. Parents look forward to sending their 4th graders every year.

[a] The numbers sum to more than 211 and percentages sum to more than 100 because many comments included ideas from more than one category.

attention to agricultural safety, dissemination of information to other people beyond camp participants, increases in children's safety knowledge, and providing a fun, interactive learning experience. The categories, distribution of comments across the categories, and examples of each type are presented in table 3.

Among the coordinators who answered this question, 21% made comments related to community cooperation, relating how well various agencies and people worked together, describing the wide array of organizations that worked together, and expressing the value of an opportunity to bring groups together around a common goal. Many coordinators mentioned a general increase in safety awareness at the community level (48%), and they mentioned that adults at the camp also enhance their awareness of safety (16%). These two types of responses could both fit under the strength of "positive attention given to agricultural safety." Many coordinators mentioned the idea that children are learning about the importance of safety at the camp (44%). Along with enhanced safety awareness and knowledge, a number of coordinators expressed the hope for a reduced number of injuries as a result. One need not participate directly in a camp to learn some of the information imparted there. A smaller but non−trivial number of the coordinators (15%) noted that the children who attend the camps become conveyors of the information and disseminate it to family or friends at a later time. Approximately 6% of the comments made by coordinators were categorized as being related to enjoyment of the camp or

simply support for the camp. Indirectly, perhaps these are endorsements of the strength cited by Baker et al. (2001) that the camps are hands–on, interactive, fun learning experiences.

What Adults Learned from the Farm Safety Day Camp

Volunteer Comments

A majority (60%) of the 5,037 volunteers who returned report forms said, in response to a yes/no question, that they had learned some new safety information while volunteering with the camp (no = 30%; no answer = 10%), and a majority (56%) said they planned to make a safety change at their own farm or home (no = 28%; no answer = 16%). Responses for volunteers in the selected group of 28 representative camps, from which 739 volunteer report forms were received, are the basis for analysis of the volunteer comments. Among these 28 camps, 63% of those completing a report said they had learned something new (30% = no; 7% = no answer), and 61% said they were planning to make a safety–related change at home (29% = no; 10% = no answer). Thus, the response rates to these two questions were comparable for the selected group and the entire group of volunteers. A much smaller number of volunteers wrote a response to the follow–up question asking what they had learned or what they were planning to change. The remaining volunteers who said they learned something but did not write an answer to these two questions might simply have not wanted to take the time to write an answer, or they might have felt that previous safety lessons had been reinforced, or have felt a general urge to be safer without being able to cite something specific.

Safety Information Learned by the Volunteers

Approximately 31% (n = 146) of those who said they learned something new answered the open–ended question about what they had learned (this represents 20% of all the volunteers who completed a form in the 28 selected camps). These responses reveal that the volunteers learned new information about a wide variety of topics, with the largest number of responses in the categories of ATVs, animal safety, fires, electricity, grain, chemicals, firearms, PTOs, and water safety. All comments were coded by topic areas (generally following the curriculum units in the camp manual), yielding the distribution shown in table 4. Examples of each category are also provided.

Safety Changes Planned by the Volunteers

Even more significant than learning something new is the plan to make a concrete change in safety practices. In the 28 selected camps, 31% (n = 141) of those who said they would make a change answered the open–ended question about what particular safety changes they were planning to make at home (this represents 20% of all the volunteers who completed a report form in these camps). Planned changes were sometimes stated very generally, such as "be safer," while others were very specific, such as "put all PTO shields in place." The distribution of these comments by curriculum topic areas is shown in table 5 along with examples for each category.

Parent Comments

To investigate the impact of the camps through dissemination of information from the child to the parent or family, parents' responses to the question, "Has your family made any changes due to what your child learned at camp?" were analyzed. Approximately 22% (n = 200) of the 927 parents interviewed named one or more changes the family had made following the child's participation in the farm safety day camp. As with the volunteers' responses regarding planned changes, some of these implemented changes were general, such as "We are more alert to safety issues," while other comments were very specific, such as "We bought a fire extinguisher." The distribution of these comments is shown in table 5 alongside the distribution of volunteers' comments. A

Table 4. Did you learn any new safety information before or during the camp? If so, what did you learn?

Topic	Examples	No. of Comments	% of Respondents
ATV	I didn't know what the numbers on the ATV were or what age was appropriate for certain ATVs, but I learned that.	16	11.0
Animals	Learned about horses and small animals.	15	10.3
Fire	I learned more about fire extinguishers.	14	9.6
Electricity	Information on electrical arcing and grounding.	12	8.2
Grain	Stay out of grain holders.	12	8.2
Chemicals	Use rubber gloves when applying pesticide.	9	6.2
Firearms	Learned more about gun safety.	9	6.2
PTOs	Learned PTO safety.	7	4.8
Water (boats)	How to react to being in a water current.	7	4.8
Survival	A Frito can burn for three minutes. A good thing to bring backpacking.	6	4.1
Food (biosecurity)	How you have to be clean before going into the milk barn.	5	3.4
Farm equipment	A broken/severed hydraulic line causes loader to fall immediately.	5	3.4
Weather	Don't get under an overpass if a tornado is coming.	5	3.4
Snakes (spiders)	Learned which poisonous snakes are in our area.	5	3.4
Small equipment or lawn mowers	That you always push a mower side–to–side on a hill, not up and down.	4	2.7
Reaction time	How many times machinery rotates per second.	4	2.7
Emergency response	I learned a lot about the fire department and the 911 department, too.	4	2.7
Railroad crossings	Train safety. I learned the amount of time for trains to stop and how far it takes it to stop.	3	2.1
Tractors	I learned that half of the accidental deaths are from rollovers.	3	2.1
Bicycle	I learned hand signals for bicycles.	3	2.1
First aid	First aid techniques.	2	1.4
Sun	New facts about sun safety and use of sunscreen.	2	1.4
Ear protection	I learned that any sound over 85 decibels can hurt your ears, and many every day sounds are over 85 decibels. We need to wear ear protection and stay away from those sounds.	1	.7
Disability	I learned exactly how your life changes after losing a limb.	1	.7
Bow and arrow	How to work a bow and arrow.	1	.7
Natural gas	How to turn off gas at the meter.	1	.7
Security	Some tricks to get away from abductors.	1	.7
Reminder of things known	Primarily I was reminded of things.	3	2.1
General safety awareness	Tasks should be age appropriate. We learned about how important safety is on the farm and at home. I am 68 years old, and I learned at least two new things at each station.	18	12.3
Other	(Could not be categorized)	3	2.1

Table 5. Volunteers: After participating in the day camp, do you plan to make any safety changes at your farm or home? If so, what will you change? Parents: Has your family made any changes due to what your child learned at camp?

Topic	Example	No. of Volunteer Comments	% of Volunteer Respondents	No. of Parent Comments	% of Parent Respondents
ATV	There will be no pull starts on our ATVs. We put a helmet on the four–wheeler.	6	4.3	7	3.5
Animals	Be more careful around livestock.	4	2.8	3	1.5
Fire	I will add a couple more smoke alarms and check the fire extinguishers a couple of times a year. We have a fire escape plan.	22	15.6	46	23.0
Electricity	Make sure all electrical appliances are not only turned off, but that they are also unplugged.	2	1.4	5	2.5
Grain	To be safer around grain elevators.	2	1.4	3	1.5
Chemicals	Check chemicals at home to child-proof it.	10	7.1	6	3.0
Firearms	I actually picked up some tips from the firearms instructor.	2	1.4	6	3.0
PTOs	Check to make sure the shields are in place.	7	5.0	6	3.0
Water	Post pool rules at the pool.	1	.7	0	0
Survival	Will keep homemade survival kit in our vehicle.	2	1.4	0	0
Food (biosecurity)	Wash hands better and more often.	2	1.4	0	0
Farm equipment	Work only when machinery is completely off. Put up auger stickers.	8	5.7	12	6.0
Weather	Go over tornado safe place again with my children.	2	1.4	1	.5
Small equipment or lawn mowers	Will never use a power chain saw with a loose chain. Make sure the girls have better shoes on when mowing.	9	6.4	16	8.0
Emergency response	Emergency numbers need to be posted better.	8	5.7	2	1.0
Tractors	Add roll bars! She no longer rides on the tractor while her father is driving.	13	9.2	14	7.0
First aid	I will update the first aid kit.	5	3.5	5	2.5
Sun	Wear more sunscreen.	2	1.4	4	2.0
Ear protection	I'm going to keep my music a lot quieter! Wear earplugs when mowing.	1	0.7	2	1.0
Safety gear	Maybe I can get my brother to wear his helmet.	7	5.0	12	6.0

(continued)

Table 5 (continued)

Topic	Example	No. of Volunteer Comments	% of Volunteer Respondents	No. of Parent Comments	% of Parent Respondents
Seatbelts	Get more adamant about seatbelt use.	2	1.4	6	3.0
Cars	I learned about car wrecks.	1	0.7	0	0
Clothing	That tighter clothing is best.	1	0.7	4	2.0
Snakes and insects	We no longer pick up spiders.	0	0	5	2.5
Reminder of things known	It was a good refresher course.	1	0.7	2	1.0
General safety awareness	It is safe around my farm, but we will try to be safer. There will be more supervision of the children. Be more aware of some of the dangers and take the time to be safer.	38	27.0	31	15.5
Talk about safety	We talk about safety more.	0	0	10	5.0
Watch out for others	He helps siblings to be more safe.	0	0	3	1.5
Other	We don't leave sharp objects out. Learned how to help handicapped people.	0	0	20	10.0

review of the examples shows that the changes planned or made by families follow very closely with the major points covered in the curriculum units of the manual involving clear, straightforward messages that are relatively simple to remember.

Discussion

The results of this study highlight the community benefits of a farm safety day camp program. The five strengths of these programs, as delineated by Baker et al. (2001), provide an effective framework for organizing these results.

To begin, there are the two strengths that directly affect the camp participants. First, and key to the purpose of the camps, is that the participants learn about safety. The fact that children learn about safety at a farm safety day camp is supported by a number of studies of such camps. Several reviews (DeRoo and Rautaianen, 2000; Hartling et al., 2004) as well as more recent studies (cf. Arnold et al., 2004; McCallum et al., 2005a, 2005b) show improvements in knowledge and reported behavior related to safety concerns taught at the camps. Some of this learning may represent acquisition of new knowledge and ideas, while in other areas it is a reinforcement of information the participants already knew (Arnold et al., 2004). Many of the coordinators' comments referred to the learning that takes place among the camp participants and the increased awareness they gain regarding safety concerns. In addition, 95% of parents said the camp was effective in making their child safer, and many were able to cite ways in which the camp had made the child safer. These results are similar to those reported by Arnold et al. (2004), where 80% of the parents of children attending a farm safety program felt it was a beneficial experience for their children, and 27% reported that their children were practicing better safety behaviors after camp. Over 90% of volunteers at the camps also rated them as effective in teaching safety to children.

The second and related strength of farm safety day camp programs that has a direct impact on the children participating is the view that these programs provide a good learning experience in a fun, hands–on, interactive format. The camp coordinators reported receiving positive feedback from children, parents, and teachers about the children's enjoyment of the camp experience, thus supporting the belief that the camp is an effective and fun learning experience. Volunteers gave very positive ratings to the learning aspects of the camp, and parents' ratings of the camp and their willingness to recommend such a camp to others lend further support to this claim.

In addition to these direct effects on the camp participants, there are the strengths that translate into indirect effects or impact on the community. As they gain knowledge, the camp participants become agents of change within the wider community. Many of the coordinators' comments referred to the ability of children to disseminate information to the larger community by taking it back to their families. Nearly a quarter of the parents interviewed indicated that the child's camp experience had led to some safety–related changes in their households or on their farms, thus confirming this effect. Some of the lessons taught at the camps are things that children can implement on their own, such as staying away from PTOs, but most require some action and support from the adults in their lives. Thus, the impact of the camp will be tempered by the child's ability to share the information with his or her parents and influence them to change their behavior. For example, wearing a helmet when riding an ATV is something a child can do independently, but only if the helmet is made available by the parent. For families that already have helmets, the camp reinforces the importance of wearing them; for families that do not have helmets, the child must convey their importance, and the adult must then purchase a helmet so the child can change his or her behavior. Similarly, the child might learn and understand the importance of ROPS on tractors, but the child cannot directly make a change in the tractor on the family farm. By discussing these and other issues with the family, however, the child may influence the parents to rethink some of the issues and reinforce other safety practices that have lapsed.

Going beyond the families that participate in the day camp, there is an arousal of safety awareness among others in the community. Volunteers' comments regarding what they learned and changes they planned to make in their own lives provide evidence that the people involved in conducting the camp benefit from an increased attention to safety issues. Furthermore, even those who did not name anything specific that they learned or planned to change probably benefited from reminders and reinforcement of safety concerns and behaviors they already knew. Additionally, many of the coordinators' comments referred to the camp providing an opportunity in their community for increased attention to safety concerns. This attention could arise from the preparations and planning of the camp, pre–camp publicity, post–camp news coverage, or informal discussions among community members occurring as a spontaneous outcome of a community event.

Finally, there is the aspect of community building that is a by–product of the process of planning and conducting a farm safety day camp event. Indications of the community building opportunities are shown in many of the coordinators' comments about how their communities benefited from the camps. They cite the development of cooperation and cohesiveness among various groups in the community as they work together to achieve a common goal. Concrete evidence of widespread community cooperation comes from data on volunteers and the involvement of community groups. Camps engage the participation of a large number of community members and the involvement of many local businesses and organizations. On average, 61 volunteers are involved in planning and conducting a camp, and an average of 19 local businesses or organizations are involved with financial resources or other forms of support including volunteer time.

These organizations provide an average of $1,661 dollars in cash and in−kind donations per camp. While the model for conducting the camps relies heavily on community input, it clearly also provides the opportunity for communities to become stronger through the process and may even pave the way or be the catalyst for further collaborative discussions and development of additional community interventions.

This emphasis on ensuring that the camps are community based corresponds to a growing movement in the area of community health issues on the importance of building local capacity to solve health problems (Minkler, 1999). Building such local capacity requires the involvement of multiple and diverse sectors. In one project, Faust et al. (2005) used discussion suppers in rural areas to engage the community in health improvement programs, highlighting the importance of community participation, mutual respect and trust, and partnership with community stakeholders. In another study of rural capacity to address health issues, Morton (2002) calls for involving the business and industry sector in local health problem solving, again citing the importance of coalitions, networks, and trust. Farm safety day camp programs, such as those evaluated in this study, have been developed through precisely this mechanism, relying on local capacity and involving multiple facets of the community. While relying on community cooperation to plan and conduct the camp, the process has also contributed indirectly to strengthening these communities as they work together to improve the safety of the children and the community as a whole.

These data provide insight into the potential impact that sponsoring a farm safety day camp can have on a community. From the coordinator reports, volunteer reports, and parent interviews, it is clear that a farm safety day camp touches many people in the community, taps a rather large number of resources, and has benefits that go beyond the immediate education of the camp participants. Among these benefits are the enhanced safety awareness of the volunteers themselves and other members of the community, as well as enhanced community strength and cohesiveness.

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References

Arnold, G., D. Jepsen, and J. Hedrick. 2004. Formative evaluation of a farm safety program: A survey of participants and their parents. Paper presented at the 2004 annual meeting of the National Institute for Farm Safety, Inc.

Baker, A., N. M. Esser, and B. C. Lee. 2001. Strengths and weaknesses of children's farm safety day camps. *J. Agric. Safety and Health* 7(2): 89−99.

Burgus, S. 2003. Rural partnership building. In *Proc. 5th International Symposium: "Future of Rural Peoples: Rural Economy, Healthy People, Environment, Rural Communities*." Saskatoon, Sask.: University of Saskatchewan, Institute of Agricultural Rural and Environmental Health.

DeRoo, L. A., and R. H. Rautaianen. 2000. A systematic review of farm safety interventions. *American J. Preventive Medicine* 18(4 supp. 1): 51−62.

Faust, L. A., L. W. Blanchard, D. A. Breyfogle, J. K. Baroni, R. E. Reed, and M. J. Young. 2005. Discussion suppers as a means for community engagement. *J. Rural Health* 21(1): 92−95.

Hartling, L., R. J. Brison, E. T. Crumley, T. P. Klassen, and W. Pickett. 2004. A systematic review of interventions to prevent childhood farm injuries. *Pediatrics* 114(4): 483−496.

Hughes, W. J., and J. Hartley. 1999. Georgia Healthy Farmers Farm Safety Camp: Description and evaluation of a model program. *J. Agromedicine* 6(3): 43−59.

McCallum, D. M., M. B. Conaway, S. Drury, J. Braune, and S. J. Reynolds. 2005a. Safety–related knowledge and behavior changes in participants of farm safety day camps. *J. Agric. Safety and Health* 11(1): 35–50.

McCallum, D. M., S. J. Reynolds, M. B. Conaway, and J. Braune. 2005b. One–year retention of increases in knowledge and safe behavior by participants in farm safety day camps. Presented at the 2005 National Injury Prevention and Control Conference.

Minkler, M. 1999. *Community Organizing and Community Building for Health*. New Brunswick, N.J.: Rutgers University Press.

Morton, L. W. 2002. The contributions of business and civil society sectors to rural capacity to solve local health issues. *J. Rural Health* 17(3): 167–178.

Reynolds, S., et al. 2002. *Progressive Farmer.* Farm Safety Day Camp Manual. Birmingham, Ala.: Progressive Agriculture Foundation.

Steffen, R., and G. Niedbalski. 1998. Farm safety day camps: Developing a definition using the Dephi method. *J. Agric. Safety and Health* 4(2): 109–117.