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## **Evaluation of the North American Guidelines for Children's Agricultural Tasks Dissemination to 457 Farm Families in North Central Wisconsin**

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### **SUMMARY:**

*Purpose:* The purpose of this evaluation was to determine whether mailing the NAGCAT resource to farm parents sufficiently prompted them to use NAGCAT.

*Methods:* The Transtheoretical Model of Behavioral Change provided the framework for assessing farm parents' use of NAGCAT. The sample was drawn from the farm cohort within the Marshfield Epidemiologic Study Area (MESA). The NAGCAT Parent Collection was mailed to 457 MESA farm families who were identified as having children 7 to 16 years (the age range covered by NAGCAT). Four months after the dissemination, parents were mailed a survey to assess their use of NAGCAT.

*Results:* A total of 183 farm parents responded to the survey for a response rate of 40%; 143 surveys were analyzed. Eighty percent of the children living on these farms were doing farm work. Twenty-five percent of farm parents were in the action stage (actively using the NAGCAT resource).

*Implications:* This study reveals that just getting NAGCAT into the hands of farm parents is not sufficient to move the majority of parents to use the resource. In order for parents to progress to the action stage of behavior, appropriate interventions need to be identified.

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## **Introduction**

The agricultural worksite is a hazardous environment for children. Nationally, more than 100 children are fatally injured each year (Rivara, 1997) and nearly 33,000 are seriously injured (Myers and Hendricks, 2001).

Work-related injuries to children may occur when they are assigned hazardous jobs that are beyond their physical and mental capabilities. The recognized need to match a child's developmental characteristics with the requirements of the agricultural job provided the impetus for the North American Guidelines for Children's Agricultural Tasks (NAGCAT). NAGCAT were developed to assist parents in making developmentally appropriate decisions when assigning farm work to their children 7-16 years old. NAGCAT are based on child development, current agricultural practices, and occupational safety.

NAGCAT address the safe involvement of children in agricultural jobs by identifying the physical, cognitive, and psychosocial abilities that a child must have in order to safely conduct a specific agricultural job. In addition, adult responsibilities, potential hazards of the agricultural job, and recommended level of supervision specific to the particular job are included. The NAGCAT Parent Collection contains six attractively illustrated booklets grouped into the topics of: Animal Care, General Activities, Haying Operations, Implement Operations, Manual Labor, and Tractor Fundamentals ([www.nagcat.org](http://www.nagcat.org)). Each booklet contains 6-10 different agricultural jobs.

NAGCAT were released in 1999 and in order to effectively decrease the risk of farm-related injury, NAGCAT must be disseminated to farm parents. Several dissemination activities related to NAGCAT have occurred. In Canada, the Saskatchewan and Manitoba Departments of Labour, in partnership with agribusiness, distributed newspaper copies of NAGCAT to the subscribers of an agricultural newspaper (Blahey, 2002). Evaluation of these efforts is slated to begin in spring 2002 (G. Blahey, personal communication, April 2, 2002).

A multi-site randomized control trial in the United States and Canada compared the efficacy of a standard dissemination strategy with an enhanced, multi-phased dissemination in influencing farm parents to use NAGCAT when assigning work to their children (Marlenga, Pickett, and Berg, in press). The enhanced dissemination was comprised of 6 components timed throughout a period of 11 weeks. The components included three mailings (a video on child development, fact sheets on child development, and booklets from the NAGCAT Parent Collection), two telephone calls to confirm receipt of mailings, and a final letter of encouragement. The researchers found that an enhanced dissemination increased farm parents' use of NAGCAT, but simply mailing the NAGCAT Parent Collection to interested farm parents also had an important effect.

The purpose of this study was to extend the work of Marlenga et al. (in press) and determine whether simply mailing the NAGCAT Parent Collection to a non-volunteer sample of farm parents prompted them to use NAGCAT when assigning work to their

children. The results of this study could serve as a guide for future community-based NAGCAT dissemination efforts.

## **Methods**

### Study Design

The Transtheoretical Model of Behavioral Change provided the framework for this cross-sectional evaluation of farm parents' use of NAGCAT. This model, commonly called the Stages of Change, can be used to study and understand the process of behavior change (Prochaska and DiClemente, 1984). It has been suggested as a useful model for injury prevention (Dejoy, 1996), has been applied to a farm safety intervention with high school students (Reed, Kidd, Westneat, and Rayens, 2001), and used in the NAGCAT dissemination study mentioned previously (Marlenga et al., in press)

The Stages of Change model suggests that farm parents will go through a series of stages in their progression to regular use of NAGCAT. This circular model includes the stages of precontemplation (parent has no intention of using NAGCAT), contemplation (parent is considering using NAGCAT), preparation (parent is considering the use of NAGCAT in the immediate future), action (parent is actually using NAGCAT), and maintenance (parent is using NAGCAT and working to sustain the behavior). These stages can be measured using a series of simple questions. Once the stage of change is identified, appropriate interventions can be tailored to match the stage of behavior with the intention of motivating people to action (Prochaska and DiClemente, 1984).

### Participants

Farm parents in the study were operating farms in the Marshfield Epidemiologic Study Area (MESA). MESA serves as a resource for population-based health research and is comprised of a geographic region of 24 ZIP codes in northern and central Wisconsin. Because agriculture plays a large economic and cultural role in MESA, a cohort of all farm residents within MESA was identified in order to study unique health conditions of farmers. The 1998 farm cohort validation revealed 5,432 farm residents living in MESA (<http://research.marshfieldclinic.org/merc/mesa.stm>). For this study, the Marshfield Epidemiology Research Center staff identified 460 families with children between 7 and 16 years of age (ages covered by NAGCAT) from the MESA farm cohort. The Marshfield Medical Research Foundation's Institutional Review Board (IRB) approved the study protocol.

### Procedure for Dissemination of NAGCAT

Postcards were mailed to farm parents in early April 2001 notifying them that the NAGCAT Parent Collection would be arriving in a few weeks, compliments of the Children's Miracle Network. In late April, NAGCAT were mailed to farm parents with a letter describing the purpose of NAGCAT and encouraging them to use the resource. In early May, a press release was created announcing the distribution of NAGCAT. The press release was intended to prompt farm parents to use NAGCAT. Two area newspapers and four area radio stations carried the story.

### Evaluation of the Use of NAGCAT

The Stages of Change model was the basis for assessing the primary outcome of this study (use of NAGCAT). This model suggests a series of structured questions to assess behavior change and has been shown to have a high degree of construct validity for both cessation of negative behaviors and acquisition of positive behaviors (Prochaska, et al., 1994). The Stages of Change instrument used for this study was previously developed by Marlenga, et al. (in press) to assess parents use of NAGCAT.

The one page evaluation survey was mailed to farm parents in early September 2001 with a personalized cover letter encouraging them to complete and return the anonymous evaluation in the self-addressed, stamped envelope provided. A second mailing of the evaluation form and cover letter took place in early October in an effort to improve response rates.

### Analysis

Descriptive statistics were employed to characterize the participating farms and the children working on the farm. The primary endpoint was the proportion of farm parents in the action stage of behavior with respect to using NAGCAT.

## **Results**

### Description of Sample

A total of 143 families responded to the survey for a response rate of 40%. Of these, one participant asked to be removed from the mailing list and one evaluation was received after the deadline. Thirty-eight were ineligible because they were no longer farming, did not have children between 7 to 16 years, or did not complete the survey. The remaining 143 surveys were analyzed.

There were 301 children living on 143 farms and 80% of them were engaged in farm work. The majority of farms were full time dairy farms. The average farm size was 276.7 acres (range 4.0-2000.0 acres). Participating MESA farms were compared with farms within Wisconsin and found to be representative in terms of size and commodity. The average size of Wisconsin farms in 1998 was 210 acres and dairy was the primary commodity (Wisconsin Agricultural Statistics Service, 1999)

### Farm Parents Use of NAGCAT

Twenty-five percent of parents who returned the evaluation were in the action stage (actively using the NAGCAT resource). Table 1 shows farm parents' stages of change related to the use of NAGCAT.

**Table 1: Farm Parents' Stages of Change Related to the Use of NAGCAT**

Stage of Change	n	%
Action	36	25.17
Preparation	5	3.50
Contemplation	19	13.29
Pre-contemplation	83	58.04

Farm parents who were not using NAGCAT were asked “what factor most influenced your decision NOT to use NAGCAT?” The five most common reasons for not using NAGCAT were: 1) they were too busy to read NAGCAT or that NAGCAT took too much time to read and/or use; 2) NAGCAT are “common sense;” 3) their children do too little farm work to use NAGCAT; 4) they grew up on a farm, are already concerned about safety, and assign work carefully; and 5) they forgot or did not know about NAGCAT. A comprehensive list of reasons why parents were not using NAGCAT is displayed in Table 2.

**Table 2: Reasons Why Parents (n=65) in MESA were not Using NAGCAT\***

Comment	n (%)
Too busy, takes too much time to use, takes too much time to read	23 (35.4)
NAGCAT are “common sense”	10 (15.4)
Children do very little work, only on farm part-time	10 (15.4)
Already concerned about safety and assign work carefully; I grew up on a farm	9 (13.9)
Forgot or did not know about NAGCAT	9 (13.9)
Kids don't work, don't assign farm work to kids (children on farm between 7-16)	6 (9.2)
Children's abilities vary with exposure, maturity, obedience, and experience	5 (7.7)
Kids have had safety training	4 (6.2)
Children are too young to work on the farm (children on farm between 7-16)	4 (6.2)
Haven't needed it, doesn't apply to our farm (children on farm between 7-16)	3 (4.6)
NAGCAT are too juvenile, insult to intelligence	2 (3.1)
Don't allow children around animals or machinery	2 (3.1)
Depressed farm economy	1 (1.5)
I don't assign work, my husband does	1 (1.5)
Child is developmentally challenged	1 (1.5)

\*Some parents provided more than one comment.

NOTE: 18 parents not using NAGCAT did not explain why they were not.

## **Discussion**

The key finding in our study was that simply mailing NAGCAT to farm parents prompted 25% of them to begin using NAGCAT when assigning farm work to their children. While this is a very modest percentage, simply mailing NAGCAT may be a cost-effective dissemination method depending on the goals and budgets of community-based organizations.

Our study was an extension of a randomized controlled trial to evaluate NAGCAT dissemination methods (Marlenga, et al., in press). These researchers found that 37% of farm parents in the standard dissemination group (received just the NAGCAT booklets by mail) were in the action stage compared to 25% in our study. The difference of 12% may be explained by the fact that farm parents in the randomized controlled trial volunteered to participate in the study and thus may have been more motivated to use NAGCAT than our non-volunteer sample.

The findings must be viewed with caution because the sample of MESA farm parents is not representative of the U.S. population of farm families. Further, our 40% response rate is less than optimal. However, the homogeneity of the MESA farm cohort leads us to believe that non-responders were not characteristically different than responders. Thus, our finding should be representative of the farm parents in MESA, as well as farm parents in the state of Wisconsin.

## **Implications**

The optimal dissemination strategy for NAGCAT has yet to be determined. However, it is clear that simply mailing NAGCAT to farm parents is not sufficient to motivate the majority of them to begin using it when assigning farm work to their children.

The fact that 58% of farm parents were in the precontemplation stage of behavior calls for a different dissemination strategy that matches that stage of behavior. Appropriate interventions should include measures to increase the awareness of the need to change the way work is assigned to children and personalized information on the benefits of changing the method of assigning work to children (Prochaska, DiClemente, and Norcross, 1992).

The reasons farm parents provided about why they were not using NAGCAT brings to light another issue to consider when disseminating NAGCAT. Many farm parents reported that NAGCAT take too much time to read and/or use. Perhaps it would be worthwhile to send one or two NAGCAT booklets from the Parent Collection to farm parents based on the commodity they are producing. This would limit the amount of information sent to farm parents at one time and may make NAGCAT more palatable. An alternative would be to use the step by step approach used by Marlenga, et al. (in press) in their enhanced intervention where farm parents were provided with smaller amounts of information at timed intervals. This method may also limit the information overload and increase the likelihood that non-volunteer farm parents would use NAGCAT.

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