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## Developing and Using the Narrative-Story Simulation as a Teaching Tool

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### Abstract

Activities in which participants work through real-world scenarios can enhance their ability to manage complex situations and can encourage implementation of risk management strategies and adoption of safety practices. Practical and credible information presented in a "hands-on" setting is engaging and memorable. This article shows how to develop and use one method for presenting such activities: the narrative-story simulation. Examples and sources of materials are given.

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## Background

This article describes the use of narrative-story simulations for the topic of agricultural safety. The principles used can easily be adapted to other common topics taught by Extension. Cole, Vaught, Wiehagen, Haley, and Brnich (1998) indicated that a growing body of research from a number of fields suggests that decision-making skills needed to cope with emergency situations can be taught by well-designed simulation exercises based upon real-world cases.

It is better to have studied, worked, and debated the choices and decisions encountered in the simulation than to encounter them for the first time in real-life. Narrative stories are a method that translates injury data into safety educational materials. Narrative-story simulations have been very effective in mining and other industries (Cole, 1997). Now their use has been adapted for agriculture.

Narrative theory states that humans are primarily storytellers, thus people respond favorably to messages presented in a narrative framework (Morgan, Cole, Struttman, & Piercy, 2002).

In discussing narrative simulation development, Cole (1997) noted that each story segment presents a probable scenario that requires a series of judgments among alternative actions and provides immediate feedback about the consequences and correctness of the actions selected.

By interacting in small groups, participants reveal to each other their wisdom, attitudes, beliefs, knowledge, and misconceptions as they proceed to resolve the simulated event. Through development and evaluation of strategies and actions for controlling a dangerous situation and preventing a tragedy, participants recognize the choices, decisions, and experiences that lead to the consequences of those decisions.

The goals of the narrative-story are to:

- Promote safety attitudes, and behaviors to prevent injury events or lessen severity of outcomes based on use of proper practices
- Enhance team members' critical thinking skills needed to assist with preparation and response to various situations.

By using the story format with named characters (fictitious), people find it easier to personalize the risk than by just viewing statistics. Stories are more involving to readers, who become more

engaged in the learning process. Scenarios for simulations are based on actual events, thus they are credible and authentic for helping the participant relate to and remember the information.

## Implementation

The theoretical basis for the narrative simulations is the use of case-based and rate-based injury surveillance data to construct interactive narrative simulation exercises that teach and assess critical thinking and decision-making skills (Cole, 2001).

Narrative simulations require the user to interact with a developing story, its characters, plots, and predicaments. The user must make choices among alternative decisions and note the consequences of these choices. The simulations are most effective when used in small groups of from three to five individuals who collaborate during the activity. The simulations consist of four parts:

- Tips
- Problem Booklet
- Answer Sheet
- Answer Key

The Tips explain to the group leader how to administer the simulation. The Problem Booklet presents the simulation scenario a page at a time using text and graphics. The participants mark their choices on an Answer Sheet. When each small group has finished, participants compare their answers to the Answer Key and discuss any differences of opinion. The paper and pencil simulations can be completed in 20 to 30 minutes.

The materials are ideal for use as hands-on activities in classrooms and community meeting settings. Farmers and farm family members involved in field-testing the simulations reported that they were interesting, engaging, and memorable (Cole, 2000).

The format for the narrative simulation is typically several pages of brief text and graphics that tell a story. As the story unfolds, participants select from among decision-making alternatives of what should be done at each point in the story. Questions may be raised about others that are placed at risk and why or how others (family members, community, etc.) may be impacted. Questions and points are also raised for participants to consider how the outcome could have been avoided, i.e., where and how the chain of events could be broken to prevent the "bad" outcome or lessen the severity.

The questions that accompany each segment of the story relate to alternatives that would be correct actions, incorrect and dangerous actions, or actions that are ineffective.

The steps in developing a narrative-story simulation are:

1. Collect data of actual cases. Newspaper clippings are frequently used. Based on the data collected, select a problem area that needs to be targeted.
2. Develop a story based on a "composite" of the data, i.e., use the recurring facts, but use fictitious names.
3. At various points in the story, insert questions about possibilities of what could/should/would be done at that point. Stories can continue along their present story line, which is leading up to a "bad" outcome, e.g., *No Way to Meet a Neighbor*, where the inevitable collision between a motorist and a tractor occurs. Or they can be written to change direction and result in the "good" outcome, e.g., *Tyler's Ride and Tantrum*, where the child rides on the tractor to the field with Grandpa. The more the mom thinks about it, the more she becomes concerned. She takes the pickup out to the field to bring her son home. Thus, when the tractor overturned, the child was not involved.
4. Develop the Answer Key to include explanations of why answers selected would be good, bad, or ineffective.
5. With the Answer Key, include news articles and fact sheets covering the topic.

Agricultural safety related simulations have covered such topics as tractor overturn risks, injuries, and their prevention through the use of rollover protective structures (ROPS) and seat belts; child second riders on tractors; hazards children can encounter when they play on a farm; and the risk of severe head injury when horseback riding without a helmet. See Table 1 for examples.

**Table 1.**  
Examples of Narrative Story Simulations

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|---------------------------|--|
| No Way to Meet a Neighbor | A city dweller and an experienced farmer collide during haying season in good weather and broad daylight. Defensive driving in farming country and safe equipment operation are emphasized.  |
| A Foggy Morning Meeting   | An early morning collision between an automobile and a round hay baler occurs on a hilly and foggy country road. The woman driving the automobile is severely injured and her three children are shaken up. Defensive driving and safe equipment operation are emphasized.   |
| Tommy's Troubles          | An inexperienced 14-year-old boy is clearing a pasture of weeds and brush with a tractor and rotary mower. The tractor runs onto a log and starts to overturn. Decision alternatives include what the boy can do to escape injury. What he and his family could have done to prevent an overturn injury is examined.   |
| Tyler's Ride and Tantrum  | Over the objections of his mother, a 4-year-old boy rides on a tractor with his grandfather. The boy has a tantrum when his mother insists he get off the tractor. Later, on a nearby farm, another child is run over and killed when he falls off a tractor another grandfather is driving.   |
| Tony's Ride               | A true story about an 8-year-old boy who died when he fell off a tractor and under a mower when he was riding with his father. The simulation explores the reasons parents allow children to ride on tractors, the misconceptions involved, the severe consequences that can result, and ways to avoid this dangerous practice. Summaries of similar cases are provided. |
| Vicki's Visit             | Vicki, a young girl from a suburb, visits her cousins who live on a farm in the country. The 6-year-old child sees the farm as an awesome playground. Soon she wanders away and is exposed to several hazards. Her two young cousins also encounter hazards and risk injuries as they search for Vicki. Summaries of child farm injuries and close calls are provided.   |
| Heather on Horseback      | A 13-year-old girl who is learning to ride a horse is upset that her dad is leaving for a business trip. She begins riding her horse fast, without a helmet or supervision. She is thrown and suffers a severe head injury and a permanent disabling injury.   |

Note: The complete simulation activities are available for download from the National Ag Safety Database (NASD) at: <<http://www.cdc.gov/nasd/docs/d000901-d001000/d000997/9.html>>

## Summary

This article has explained how narrative-story simulations can be developed and used for a given subject area. Simulations allow participants to place themselves in actual or operational conditions. Empowerment is realized as people translate this critical analysis of attitude and knowledge into changed perceptions, behaviors, and work practices that can help prevent injury events or disastrous outcomes at their farm, home, or workplace.

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