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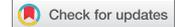


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BRIEF REPORT



## Integrating Agricultural Injury Prevention with Rural Pediatrics: A Pilot Assessment

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### ABSTRACT

**Background:** Childhood agricultural injuries are an important public health problem. Pediatricians are a trusted source of expertise in children's health and safety and could serve as a sphere of influence to augment child agricultural injury prevention efforts. The purpose of this pilot study was to begin to explore the perspectives of pediatricians in a large rural health clinic about addressing child agricultural injury prevention within their practice. **Methods:** Structured interviews were conducted with nine pediatricians who maintain a clinical practice of at least 2 days a week and care for newborns through adolescents. Detailed interviewer notes were reviewed and summarized. **Results:** Rural pediatricians readily acknowledge substantial numbers of farm children in their practice. In general, these providers: (1) recognize farming environments as a safety risk and see agricultural injury prevention as an important topic to be addressed with their patients, (2) are comfortable discussing the topic, but seldom actually initiate such conversations, and (3) doubt farm parents would be receptive to integrating agricultural injury prevention into a rural pediatric practice. **Conclusion:** While rural pediatricians recognize child safety risks in farm environments, they are reluctant to actually initiate this conversation with parents. Future research should explore both pediatricians' hesitancy to discuss agricultural injury prevention and farm parents' readiness for integrating the topic into pediatric primary care visits. Such would help to assess the viability of pediatricians as a sphere of influence for augmenting child agricultural injury prevention efforts.

### KEYWORDS

Child agricultural injury; farm environment safety/risk; rural pediatrics; socio-ecological model; sphere of influence

### Introduction

Childhood agricultural injuries represent an important public health problem. Every day 33 children sustain nonfatal agricultural injuries serious enough to require medical attention, and every 3 days a child dies from an agricultural injury.<sup>1</sup> The overall numbers of nonfatal farm injuries have declined since 2001,<sup>1</sup> but the fatality rate for workers younger than 16 years in agriculture remains consistently higher than the rate for workers younger than 16 years in all nonagricultural injuries combined.<sup>1,2</sup> Farm worksite exposures that lead to these injuries and fatalities include tractors, other vehicles (all-terrain vehicles, skidsteers), farm machinery, large animals, unguarded heights, and water sources.<sup>1–3</sup> National efforts to address these injuries and

fatalities have increased in the past 10–20 years and have led to the development and implementation of injury prevention initiatives across the United States.<sup>2,4</sup> Still, the problem of childhood agricultural injuries persists.

The socio-ecological model provides a framework to examine childhood agricultural injury prevention initiatives and illustrates the spheres of influence (adult, interpersonal, community, institution/organization, policy) that could potentially impact the protection of children from agricultural hazards.<sup>5</sup> The socio-ecological model is centered on the idea that there are multiple spheres of influence, with a continuum of strategies that impact health behaviors, and that multi-level interventions are the most effective in changing behaviors.<sup>6</sup> A recent review of child agricultural injury prevention initiatives found the

majority focused on the individual level of the socio-ecological model; that is educating children themselves about farm safety.<sup>4</sup> Based on the tenets of the socio-ecological model,<sup>2</sup> there is a need to look at spheres of influence beyond just the child if we hope to address the persistent problem of child agricultural injuries and the limited success of prevention efforts.

Pediatricians are trusted sources of information and expertise on children's health and safety. Given that trust and expertise, pediatricians could serve as spheres of influence to augment child agricultural injury prevention efforts. In fact, the American Academy of Pediatrics policy statement on agricultural injury prevention provides recommendations for pediatricians who care for children living or visiting on farms.<sup>7</sup> Furthermore, families have regular contact with pediatricians for both routine care and acute medical needs, and parents rely on clinicians for advice on child health and general injury prevention.<sup>8</sup> Ongoing success of integrating behavioral health services into rural pediatric primary care in health systems across the country<sup>9,10</sup> led us to consider whether rural pediatric primary care could also serve as a potential venue for child agricultural injury prevention advice and guidance. Thus, the purpose of this study was to begin to explore perspectives of pediatricians in a large rural clinic about addressing agricultural injury prevention within their practice. Our goal was to identify potential ways agricultural injury prevention could be effectively introduced and integrated within pediatric clinical practice.

## Methods

### Participants

Primary care pediatricians in a rural Midwestern medical center were invited to participate in individual interviews that sought to assess perceptions about addressing agricultural injury prevention in their medical practice. The study protocol was approved by the Marshfield Clinic Research Institute Institutional Review Board and the Chair of the Department of Pediatrics.

All nine pediatricians who maintain a clinical practice of at least 2 days a week and care for newborns through adolescents participated in the

study. Providers who solely work with adolescents or work in a pediatric specialty (e.g., cardiology, endocrinology) were not asked to participate.

### Measures

A structured interview tool consisting of seven questions was constructed by the authors. Prompts were included to elicit additional context for the responses. Questions focused on establishing how frequently pediatricians care for patients who live, work, or play on a farm, whether they view farm exposures as a safety risk, and how or if they address agricultural injury prevention during routine medical visits. The structured interview tool was pilot tested with two, third-year pediatric residents and then revised.

### Procedure

Pediatricians were contacted by e-mail or in person and provided information about the purpose of the study. Each interview took place in the pediatrician's office. At each interview, the pediatrician received a copy of the Research Participant Information Sheet to review; each verbally consented to participate. The first author conducted the interviews. Interviewees were also provided the chance to provide closing thoughts and reflections. The interviewer did not deviate from the script, except in one instance where a nurse entered the room and the provider invited the nurse's perspective. The interviewer took detailed notes of pediatricians' responses and typed her notes immediately following each interview.

### Data analysis

The interviewer's notes were reviewed question by question. Responses to closed-ended questions were tallied, and interviewer notes were reviewed to provide more detail about pediatricians' responses. Results were discussed at project meetings and reflected upon by all study team members. A trained qualitative data analyst reported and summarized the results.

## Results

The nine rural pediatricians reported commonly seeing children who live, work, or play on farms. They estimate 10–30% of their pediatric practice comprises such children. Two pediatricians noted this percentage would be even higher if the number of child visitors to farms was included, and in retrospect, some estimates should have been clarified and revised upward to include all children with farm exposures. Generally, pediatricians felt exposure to farming environments posed a safety risk that should be addressed with their patients.

The majority reported that farm parents never ask about safety risks associated with farming environments. Two providers stated they are rarely asked, but if they are it is usually in relation to a family debate about age appropriateness of a certain farm activity or a nonfarm parent's concerns about a child visiting a relative on a farm.

No pediatricians reported asking about children's exposure to farm environments on a regular basis. Responses ranged from "no, never" to "occasionally". The topic might come up if the provider asks about the parents' employment or the child's day-care arrangements. Although the majority of pediatricians did not address agricultural injury prevention with their patient populations, they reported they were, in fact, quite comfortable discussing the topic. Yet, few of the providers reported any actual experience in farm environments.

Despite being comfortable talking about agricultural injury prevention, pediatricians seemed reluctant to raise the issue and felt farm parents would not be receptive. Some providers stated many farm parents do not think anything is wrong with what they are doing, so agricultural injury prevention would be a "hard sell" as one pediatrician phrased it. Overall, pediatricians were skeptical that agricultural injury prevention introduced in a pediatric setting would be effective or that families would listen and buy-in.

## Discussion

The main findings from this pilot study were as follows. Rural pediatricians readily identify a significant number of farm children in their practice. They recognize the farming environment as a

safety risk and see agricultural injury prevention as an important topic for their patients. Pediatricians feel comfortable discussing the topic, but few actually initiate such conversation. They doubt that farm parents would be receptive to integrating agricultural injury prevention into a rural pediatric practice.

A mix of factors has been identified as determinants of general injury prevention counseling in pediatric practices.<sup>8</sup> Some of these factors include the physician's: (1) belief about the importance of the topic, (2) confidence in their ability to counsel on the topic, (3) perceptions about the effectiveness of counseling, and (4) office time constraints.<sup>8</sup> Pediatricians in our study identified agricultural injury prevention as an important topic that they were comfortable addressing, but they had concerns about the effectiveness of the counseling. The pediatricians did not mention office time constraints as a barrier to agricultural injury prevention counseling, but believed that time constraints were a barrier for parents. Based on these factors, it appears that pediatricians' hesitancy to address agricultural injury prevention in our study is based on perceptions they hold about farm parents, which are untested, since they do not address the topic on a regular basis. It is not clear *why* pediatricians suspect a negative reaction from farm parents. The structured interview instrument utilized here was not designed to explore this disconnect. However, future research should explore more deeply providers' reluctance to discuss agricultural injury prevention, as well as farm parents' readiness for integrating the topic into pediatric primary care visits.

The reflections gleaned from interviewer notes suggest a more nuanced view to the socio-ecological model. Farm parents have their own socio-ecological spheres ranging from friends and family, organizations to which they belong, the wider rural community, to the policy and social factors impacting their lives. Indeed, physicians have their own unique socio-ecological spheres in which they must practice. From their coworkers, the rules and policies of their employer or private practice, and their wider community of fellow practitioners, to the laws, ethics, and wider culture of medicine that direct their decisions and action, physicians exist in their own milieu.

The idea that everyone does not exist in the same socio-ecological model becomes clearer in light of pediatricians' hesitancy in addressing agricultural injury prevention. Interviewer notes referenced that providers more routinely covered topics of well-sourced water, unpasteurized milk, gastroenteritis, or salmonella, which are more typically addressed within biomedical settings with a clear cause-effect relationship and with clear preventive measures and/or medicines to be prescribed as cures. In contrast, child agricultural injury prevention is a broad topic covering an array of potential hazards with no simple or straightforward prescriptions for prevention or cure. Thus, pediatricians may not see agricultural injury prevention fitting into the biomedical model, and this may explain some of the hesitancy on the part of pediatricians to incorporate the topic into their practice. Indeed, in a recent survey regarding all-terrain vehicle anticipatory guidance practices with children, the most common barrier identified by primary care providers for not addressing all-terrain vehicle injury prevention was that it was not a routine part of their practice.<sup>11</sup> Approaching farm safety interventions from the perspective of unique, nuanced socio-ecological spheres could prove fruitful and could reveal avenues for agricultural injury prevention to penetrate pediatric primary care. Such a goal requires further investigation, as the current study has several limitations. The study included a single medical center and nine rural pediatricians. Interviews were structured, limiting the depth of the data that could be elicited. Interviews were not recorded and transcribed, so an in-depth analysis into common themes is not possible due to the lack of full, exact quotes.

## Conclusion

Rural pediatricians recognize that exposure to farm environments poses a safety risk that should be addressed, but they are reluctant to do so and are uncertain of parents' receptivity to such information. Researchers should recognize the plurality of socio-ecological frameworks present in the life of a single individual (for example, as she/he moves from farmer to parent) and between individuals (such as a parent and a pediatrician). Physician's hesitation to address agricultural injury

prevention is perhaps not surprising given the complexity of these competing frameworks.

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