A Not So Lame Outlook for Injured Farm Workers: Return to Work Software Application Development

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Abstract

Serious, restrictive, non-fatal injuries are commonplace in large animal agriculture including in pork and dairy production. Primary care clinicians often have few resources to facilitate workers' return to work. This project will develop a return to work software program to produce applicable light duty job assemblies (LDJA). One of the significant challenges is the integration of Physical and Occupational Therapists' unstructured narrative data collection methods into structured data.

Introduction

Large animal farms are growing in size, increasing in work task specialization and hiring more immigrant labor. Workers not only face inherent risks in the agricultural workplace, but are also introduced to significant dangers in these operations. A range and variety of injuries in pork and dairy farms are common and are increasingly managed by primary care physicians. Yet, clinicians are often unfamiliar with the physical demands of farming and have little training and few resources to manage the return-to-work of injured workers.

The project utilizes examples of representative pork and dairy facilities to describe workflow, feasibility and impact of returning workers into the various LDJA positions. To create the LDJAs, the project is developing a computer application designed for clinicians, to guide early return-to-work planning for injured workers in the dairy and pork industries.

Methods

With assistance from the Marshfield Clinic Research Foundation's Interactive Clinical Design Institute, we focused iterative design and prototype development on the needs of the users – clinicians, farm workers, and farm owners/managers. Focus groups of English and Spanish-speaking farm workers were conducted. One-on-one interviews with six different Marshfield Clinic clinicians led to significant design changes, shifting to a design that closely resembles the current Workers' Compensation form used throughout the organization.

Physical and Occupational Therapists collected detailed functional job and task measurements on 32 implement dealers, dairies, and pork farms. The software application has several key components: 1) database of functional job profiles, 2) a clinician interface and input form, and 3) customized return-to-work output sheets for farm owners and their injured workers available in English or Spanish.

The functional job profile database consists of hazards and physical demands for common farm tasks collected by physical and occupational therapists. The clinician interface allows the provider to electronically enter restrictions. Algorithms automatically produce alternative job assemblies within the injured worker's limitations. Lastly, simpler return-to-work output sheets are customized for owners and workers, replacing the traditional form.

Results

Physical and Occupational Therapist data collection is often based on a narrative and detailed approach. Limiting this input to structured elements allowed for algorithmic precision, but also hindered the collection and entry process, leading to four different input forms, including 24 versions of the field data collection form, which was developed in Microsoft Word.

Focus groups, interviews and usability tests with users were conducted throughout the development phase. Clinicians who were interviewed were aware of the usability issues of the complex return-to-work form currently used in practice but believed that the complexity was necessary. They expressed the desire to learn more about tasks on the farm through photos and videos, but felt that they had little time to do so.

Farm owners and workers preferred a simpler return-to-work form with lay person terms and would also like additional handouts regarding the injury or illness. All groups felt that the creation of a Spanish version of the form would be helpful for Spanish-speaking workers and their families.

Discussion

This project addresses an unmet need in agricultural safety and health – connecting the clinician to the farmer to reduce disability and sustain an adequate, safe workforce for the growing agriculture industry. It has also illuminated the significant challenge of addressing the unstructured data collection norms of Physical and Occupational Therapists in the field. The project identified those challenges, refined data collection and data entry tools and processes and developed new standards to accommodate.

Pruning descriptive value of agricultural tasks was an acceptable compromise to ensure a functional prototype was available for future testing in a clinical setting. To counter this, future research should include an evaluation of image files, .gif files, and video files as a replacement of descriptive narrative within the application.

This project closely links to several projects with a focus on injury and risk reduction in dairy production as part of the Upper Midwest Agricultural Safety and Health Center, whose overarching goal is to address health and safety issues faced by agriculture producers, workers, and their families in the Upper Midwest.