Background
Large animal farms are growing in size, increasing work task specialization and immigrant labor. Workers not only face inherent risks in the agricultural workplace, but are also introduced to significant dangers in these operations. Injuries in dairy and pork 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 safe return to work of injured workers. This project will develop a computer application designed for clinicians, working with patients, to guide safe return to work planning for injured workers in the dairy and pork industries.

Objective
The project goal is to build an application to assist clinicians, physical therapists, and occupational health therapists in translating restrictions into potential work task recommendations specific to an injured worker. The application has the potential to replace existing ink over forms and would result in more structured data, which helps make the data available for research projects. Due to the large population of Spanish speaking workers, the application’s interfaces and forms will be available in both English and Spanish.

Methods
This project employs an iterative user-centered design method on three primary end user types that interact with the system. These included employers, workers, and the clinicians, including physical and occupational therapists. Involvement of the end users as a parallel part of development is done to ensure a easy, efficient and satisfying product to use.

A usability analyst visited dairy farms to interview farmers regarding their experience with returning injured farm workers to work. Focus groups were also conducted with farm workers, some of whom had been through the injury and return to work process. Audio recordings were taken for all sessions; focus groups were also video recorded. All participants were compensated for their participation.

Interviews and focus groups probed the understanding and interpretation of the existing Workers’ Compensation Report that is given to both farmer and worker by the clinician. The current form identifies physical restrictions for the worker, but does not make any recommendations regarding suggested tasks the worker may be able to perform while healing from injury.

Interviews were also conducted with a variety of clinician roles that have experience with injured farm workers. In parallel with the interviews and focus groups, the team developed several iterations of an application that features a structured version of the assessment form and a “patient friendly” output report. Patient friendly forms have a cleaner, less dense layout and include recommended work tasks.

For both interviews and focus groups the participants were presented with the current form and a redesigned iteration of both the structured form, as well as a patient friendly form. Feedback regarding the alternate layout of the forms was collected. Areas for improvement were identified and implemented iteratively.

Results
Qualitative and quantitative data collection methods steered the content and functionality of a proof of concept prototype. Iterative rounds of usability testing and development will take place in the near future to further refine the application. Design will be implemented, also steered by feedback from users. Iterative testing and development will continue for the next year, with the possibility of additional funding, potentially resulting in electronic health record integration.

References

Contact
Andrea Mahnke, M.S.
Senior Usability Analyst
Biomedical Informatics Research Center
1000 North Oak Avenue
Marshfield, WI 54449
715-389-4474
mahnke.andrea@marshfieldclinic.org
http://www.marshfieldclinic.org/birc

User-Centered Design of an Application to Aid in the Safe Return to Work of Injured Farm Workers
Andrea Mahnke, MS1, Laurel Verhagen1, Bryan Weichelt, MS, MBA, PMP2, Iris Anne Reyes, MPH2, Will Ray1,
Matthew Keifer, MD, MPH2
(1)Biomedical Informatics Research Center, Marshfield Clinic Research Foundation, 1000 N Oak Ave, Marshfield, WI 54449
(2)National Farm Medicine Center, Marshfield Clinic Research Foundation, 1000 N Oak Ave, Marshfield, WI 54449