NIH Collaboratory

Health Care Systems Research Collaboratory

Lumbar Imaging with Reporting of Epidemiology (LIRE)

Study Snapshot

Principal Investigator: Jeffrey Jarvik, MD, MPH

Sponsoring Institution: University of Washington

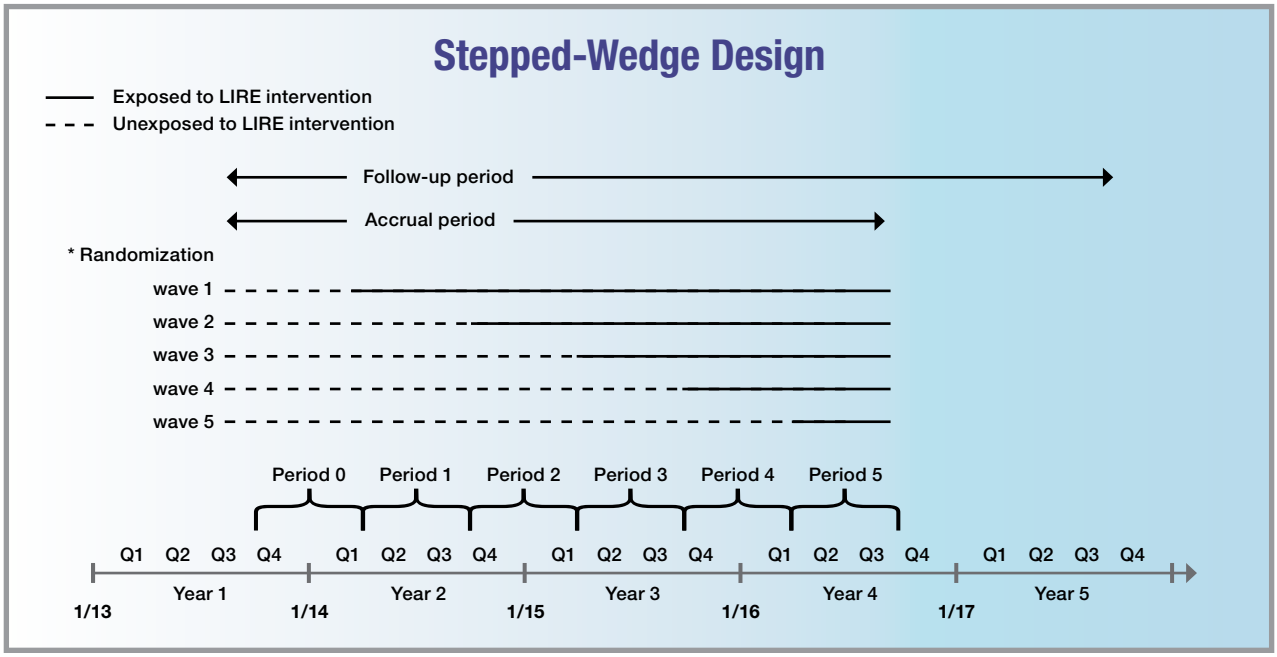
ClinicalTrials.gov: NCT02015455

Collaborating Healthcare Systems: Kaiser Permanente, Northern California; Kaiser Permanente Washington Health Research Institute; Mayo Clinic Health System; Henry Ford Health System; Oregon Health and Science University

NIH Institute Oversight: National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS); National Center for Complementary and Integrative Health (NCCIH)

Abstract: Low back pain is a National Academy of Medicine priority condition for comparative effectiveness research and is of major public health importance. It is one of the most common reasons for physician visits and an important cause of functional limitation and disability. Imaging is frequently performed as part of the diagnostic evaluation and is an important contributor to the cost of back pain care.

LIRE is a large pragmatic, cluster-randomized controlled trial testing the effectiveness of a simple and inexpensive intervention: inserting epidemiologic benchmarks into lumbar spine imaging reports. The goal of the trial is to reduce subsequent tests and treatments, including cross-sectional imaging (such as magnetic resonance and computed tomography), opioid prescriptions, spinal injections, or surgery. The LIRE trial has the potential to demonstrate the feasibility of randomly assigning clinics within large health systems to receive a clinical decision support-type intervention as well as the feasibility of passively collecting outcomes data up to 2 years after enrollment using the robust electronic medical record systems available at each health system.



What We've Learned So Far

Current Barriers	Level of Difficulty				
	1	2	3	4	5
Enrollment and engagement of patients/ subjects	X				
Engagement of clinicians and health systems		X			
Data collection and merging datasets		X			
Regulatory issues (IRBs and consent)	X				
Stability of control intervention		X			
Implementing/delivering intervention across healthcare organizations		X			

1 = little difficulty
5 = extreme difficulty

Challenge	Solution
Inadvertent patient crossover to intervention	The partner healthcare system had an issue of dynamic updating when a user opened a radiology report. Since randomization depended on calendar time in the stepped-wedge design, there was a potential for a single patient to cross over from the nonintervention group to the intervention group simply because the report was viewed at different times. The study team worked with site programmers to change the intervention insertion from dynamic to static so that it did not change depending on the viewing date.
Paying healthcare system IT programmers	It is important to provide funds through the study to pay personnel who are directly responsible for study procedures. This has the effect of prioritizing the study intervention and gives more control to investigators.

Selected Publications & Presentations	
August 2017	Using Natural Language Processing of Free-Text Radiology Reports to Identify Type 1 Modic Endplate Changes, *J Digit Imaging*, Hudanpaa et al.
November 2016	PCT Grand Rounds Presentation: Lumbar Imaging with Reporting of Epidemiology (LIRE): The Beginning of the End (or The End of the Beginning?)
November 2015	Lumbar Imaging with Reporting of Epidemiology (LIRE)—Protocol for a pragmatic cluster randomized trial, *Contemp Clin Trials*, Jarvik et al.